



We will join the future.

## **Welding aluminium with consideration of quality and productivity**

Our extensive product portfolio of aluminium wire electrodes, TIG welding rods, and various types of packaging



## **Your benefit—our capabilities**



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## **Aluminium MIG wire electrodes and WIG rods by Safran®**

As Europe's largest manufacturer and global supplier of aluminum welding and brazing wire, Safran is consistently the leader in manufacturing, quality, and production technology. We provide the entire product programme for aluminium welding and brazing filler materials, as well as accessories to support you in your daily tasks. Our technical service is able to provide fast, unbureaucratic assistance in every region of the world.

X-ray proof welding of aluminium components with high mechanical quality values begins with the selection and chemical specification of the raw materials. That is why we use raw materials with the least possible hydrogen content and a very narrow chemical composition. For the user, this means no rework due to pores or low mechanical quality values.

In order to minimize down time times for spool changes, we have spools ranging from 7 – 40 kg and bulk packaging systems ranging from 40 – 250 kg in our product portfolio. With this enormous selection of packaging systems and pay off solutions, you can decide how to increase productivity in your manufacturing facility.

Our packages are robust, making them excellent for rough daily use in production facilities. The packaging can be recycled without limitation.



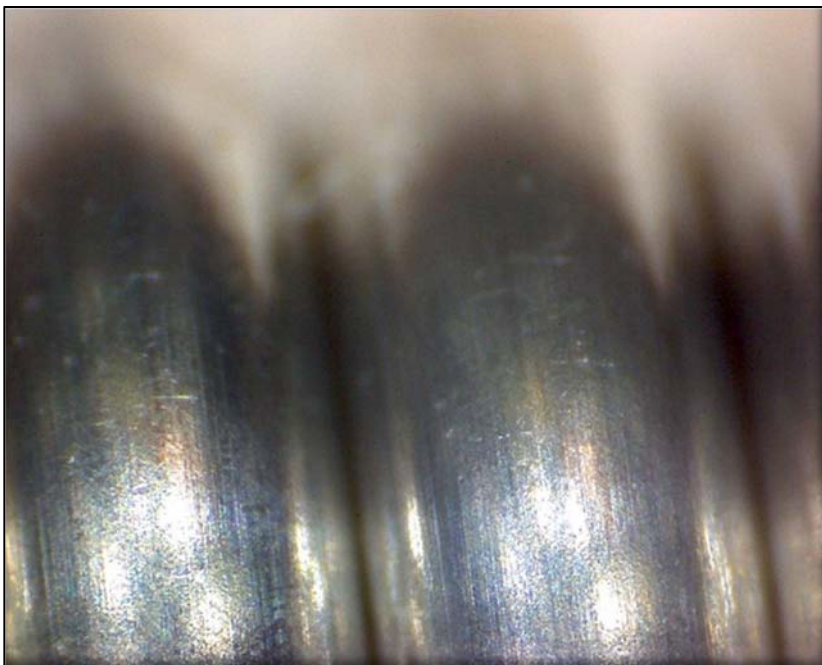
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Customers and users in the aluminium industry around the world value the consistent high quality, high productivity, and reliability of Safran.

- Trouble-free wire feed
- X-ray proof weld seams with flawless seam optics
- Robust and attractive packaging to increase your productivity
- Precise wire diameter and permanent inline measurement, critical for automation
- Constant welding parameters and reproducible results
- Strictly controlled chemistry, which results in high mechanical quality values
- Large selection of naturally hard and precipitation hardening aluminium alloys,
- Unbureaucratic technical assistance around the world



*Safran ER5356 1.2 mm, mandrel test.*

*The lack of surface defects despite the high stress at the wire electrode surface confirms that wire drawing and shaving process is very good.*



## Safran product program

### Solid aluminium wire electrodes and TIG welding rods

#### Overview of all Safran aluminium alloys

| SAFRA       | EN ISO 18273 | AWS A5.10 |
|-------------|--------------|-----------|
| Al99,5Ti    | S Al 1450    | ER 1450   |
| Al99,7      | S Al 1070    | ER 1070   |
| AlCu6MnZrTi | S Al 2319    | ER 2319   |
| AlSi5       | S Al 4043    | ER 4043   |
| AlSi12      | S Al 4047    | ER 4047   |
| AlSi7Mg     | S Al 4008    | ER 4008   |
| AlSi10Cu4   | S Al 4145    | ER 4145   |
| AlMg2,7Mn   | S Al 5554    | ER 5554   |
| AlMg4,5Mn   | S Al 5183    | ER 5183   |
| AlMg5Cr A   | S Al 5356    | ER 5356   |
| AlMg4,5MnZr | S Al 5087    | ER 5087   |
| AlMg5Mn     | S Al 5556A   | ER 5556A  |
| AlMg3       | S Al 5754    | ER 5754   |
| AlMg6Zr     | --           | --        |
| AlMg6       | --           | --        |

#### All Safran aluminium alloys meet international standards

We produce solid wire electrodes from  $\varnothing$  0,8 – 4,80 mm.

TIG rods from  $\varnothing$  1,6 – 5,00 mm in 2 kg, 5 kg, and 10 kg packaging.

*(Additional diameters and packaging on request)*



# Safron bulk packaging systems - Aluminium

## The solution to increase productivity



| Aluminium Welding Wires Alloys |             |        |      |      |      |      |      |      |      |      |      |      |      |      |       |      |      |         |       |
|--------------------------------|-------------|--------|------|------|------|------|------|------|------|------|------|------|------|------|-------|------|------|---------|-------|
| Package System 1               | Volume [kg] | Ø [mm] | 1070 | 1450 | 4043 | 4047 | 4145 | 4008 | 2319 | 5554 | 5754 | 5356 | 5183 | 5087 | 5556A | 5556 | 2319 | AlMg6Zr | AlMg6 |
| Quadro                         | 140         | 1,00   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| Ø 600 mm                       | 140         | 1,20   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| H = 900 mm                     | 140         | 1,60   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| Package System 2               | Volume [kg] | Ø [mm] | 1070 | 1450 | 4043 | 4047 | 4145 | 4008 | 2319 | 5554 | 5754 | 5356 | 5183 | 5087 | 5556A | 5556 | 2319 | AlMg6Zr | AlMg6 |
| Nano                           | 40          | 1,00   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| Ø 520 mm                       | 40          | 1,20   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| H = 390 mm                     | 40          | 1,60   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| Package System 3               | Volume [kg] | Ø [mm] | 1070 | 1450 | 4043 | 4047 | 4145 | 4008 | 2319 | 5554 | 5754 | 5356 | 5183 | 5087 | 5556A | 5556 | 2319 | AlMg6Zr | AlMg6 |
| Mezzo                          | 80          | 1,00   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| Ø 520 mm                       | 80          | 1,20   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| H = 780 mm                     | 80          | 1,60   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| Package System 4               | Volume [kg] | Ø [mm] | 1070 | 1450 | 4043 | 4047 | 4145 | 4008 | 2319 | 5554 | 5754 | 5356 | 5183 | 5087 | 5556A | 5556 | 2319 | AlMg6Zr | AlMg6 |
| Piccolo                        | 100         | 1,00   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| Ø 650 mm                       | 100         | 1,20   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| H = 560 mm                     | 100         | 1,60   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| Package System 5               | Volume [kg] | Ø [mm] | 1070 | 1450 | 4043 | 4047 | 4145 | 4008 | 2319 | 5554 | 5754 | 5356 | 5183 | 5087 | 5556A | 5556 | 2319 | AlMg6Zr | AlMg6 |
| Grande                         | 200         | 1,00   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| Ø 650 mm                       | 200         | 1,20   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| H = 950 mm                     | 200         | 1,60   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| Package System 6               | Volume [kg] | Ø [mm] | 1070 | 1450 | 4043 | 4047 | 4145 | 4008 | 2319 | 5554 | 5754 | 5356 | 5183 | 5087 | 5556A | 5556 | 2319 | AlMg6Zr | AlMg6 |
| Gigante L                      | 120         | 1,00   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| Ø 750 mm                       | 120         | 1,20   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| H = 550 mm                     | 120         | 1,60   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| Package System 7               | Volume [kg] | Ø [mm] | 1070 | 1450 | 4043 | 4047 | 4145 | 4008 | 2319 | 5554 | 5754 | 5356 | 5183 | 5087 | 5556A | 5556 | 2319 | AlMg6Zr | AlMg6 |
| Gigante XL                     | 250         | 1,00   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| Ø 750 mm                       | 250         | 1,20   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |
| H = 1100 mm                    | 250         | 1,60   | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X    | X     | X    | X    | X       | X     |



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## Safran bulk packing system

All Safran bulk packing systems are ideally suited for manual and robotic applications. They are used with a footprint from Ø 520 to Ø 750 mm.

### The benefits of paying off wire from Safran bulk packing systems are:

- + Stable arc due to uniform wire feeding
  - + No tangling wire out of the contact tip
  - + No contamination of wire guidance
  - + Longer service life due to lower wear of contact tips and liners
  - + Low torsion when paying off the wire out of the drum
  - + Transport over long distances
  - + Straight weld seams for long distances
- = **constant weld seam quality with constant weld penetration**

### You determine your spool changeout time and productivity between 7 kg and 250 kg.

Compare spool changeover times and savings  
for a demand of 10.000 kg of welding materials per year.



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## Cost comparison of various types of packaging

| Cost comparison in between Standard Spools of 7 kg, 20 kg Spool, Speed Pac "Nano" 40 kg until Speed Pac "Gigante XL" - 250 kg  |                     |                         |                        |                           |                            |                          |                          |                              |
|--------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------|------------------------|---------------------------|----------------------------|--------------------------|--------------------------|------------------------------|
| Type of Packaging:                                                                                                             | Spool<br>B300-7 kg  | Big Spool<br>D350-20 kg | Speed Pac 52<br>"Nano" | Speed Pac 65<br>"Piccolo" | Speed Pac 52<br>"Standard" | Speed Pac 60<br>"Square" | Speed Pac 65<br>"Grande" | Speed Pac 75<br>"Gigante XL" |
| Weight of wire per packaging [kg]                                                                                              | 7 kg                | 20 kg                   | 40 kg                  | 100 kg                    | 80 kg                      | 140 kg                   | 200 kg                   | 250 kg                       |
| Weld wire consumption per year [kg]                                                                                            | 10.000 kg           |                         |                        |                           |                            |                          |                          |                              |
| Number of spool replacements per year [units]                                                                                  | 1429                | 500                     | 250                    | 100                       | 125                        | 71                       | 50                       | 40                           |
| Time of replacement per type of packaging [min]                                                                                | 10                  | 10                      | 15                     | 15                        | 15                         | 15                       | 15                       | 15                           |
| Time of replacement per year [min] for a yearly consumption of 10.000 kg                                                       | 14.285,71           | 5.000,00                | 3.750,00               | 1.500,00                  | 1.875,00                   | 1.071,43                 | 750,00                   | 600,00                       |
| Total spool-change time [h] for                                                                                                | 238,10              | 83,33                   | 62,50                  | 25,00                     | 31,25                      | 17,86                    | 12,50                    | 10,00                        |
| <b>1. Costs related to spool replacements :</b>                                                                                |                     |                         |                        |                           |                            |                          |                          |                              |
| Operational costs for robot and operator [€/h]                                                                                 | 85,00 €             |                         |                        |                           |                            |                          |                          |                              |
| Costs for spool replacement per year                                                                                           | 20.238,10 €         | 7.083,33 €              | 5.312,50 €             | 2.125,00 €                | 2.656,25 €                 | 1.517,86 €               | 1.062,50 €               | 850,00 €                     |
| <b>2. Additional costs related to the use of drum packages :</b>                                                               |                     |                         |                        |                           |                            |                          |                          |                              |
| Purchasing price [€ / kg]                                                                                                      | 8,50 €              | 8,61 €                  | 8,79 €                 | 8,79 €                    | 8,79 €                     | 8,79 €                   | 8,79 €                   | 8,79 €                       |
| Welding wire costs per year [€ / year]                                                                                         | 85.000,00 €         | 86.100,00 €             | 87.900,00 €            | 87.900,00 €               | 87.900,00 €                | 87.900,00 €              | 87.900,00 €              | 87.900,00 €                  |
| Total cost per year (Welding wire cost + spool replacement cost)                                                               | 105.238,10 €        | 93.183,33 €             | 93.212,50 €            | 90.025,00 €               | 90.556,25 €                | 89.417,86 €              | 88.962,50 €              | 88.750,00 €                  |
| <b>3. Quality / Using grade</b>                                                                                                |                     |                         |                        |                           |                            |                          |                          |                              |
| Cost per hour for manual repair work                                                                                           | 36 €                |                         |                        |                           |                            |                          |                          |                              |
| Manual re-work quantity [%]                                                                                                    | 5,00%               | 4,00%                   | 3,80%                  | 0,50%                     | 3,80%                      | 1,20%                    | 0,50%                    | 0,20%                        |
| Cost for repair work per year                                                                                                  | 2.880,00 €          | 2.304,00 €              | 2.188,80 €             | 288,00 €                  | 2.188,80 €                 | 691,20 €                 | 288,00 €                 | 115,20 €                     |
| <b>4. Effort for replacements of wear parts</b>                                                                                |                     |                         |                        |                           |                            |                          |                          |                              |
| Parts cost for the replacement of contact tip and liner                                                                        |                     |                         |                        |                           |                            |                          |                          |                              |
| Contact tip or liner or both [€]                                                                                               | 15,00 €             |                         |                        |                           |                            |                          |                          |                              |
| Perform maintenance after a wire volume of [kg]                                                                                | 3                   | 7                       | 30                     | 50                        | 30                         | 40                       | 50                       | 60                           |
| Amount of maintenances [Maintenance]                                                                                           | 3333                | 1429                    | 333                    | 200                       | 333                        | 250                      | 200                      | 167                          |
| Time to replace wear parts / components [min]                                                                                  | 10                  | 10                      | 10                     | 10                        | 10                         | 10                       | 10                       | 10                           |
| Time to replace wear parts / components [h]                                                                                    | 0,17                | 0,17                    | 0,17                   | 0,17                      | 0,17                       | 0,17                     | 0,17                     | 0,17                         |
| Total effort in hours [h]                                                                                                      | 555,56              | 238,10                  | 55,56                  | 33,3                      | 55,6                       | 41,7                     | 33,3                     | 27,8                         |
| Total effort in money [€]                                                                                                      | 70.000,00 €         | 30.000,00 €             | 7.000,00 €             | 4.200,00 €                | 7.000,00 €                 | 5.250,00 €               | 4.200,00 €               | 3.500,00 €                   |
| <b>5. Financial lost due to not welded parts because of maintenance, spool exchange time / per station</b>                     |                     |                         |                        |                           |                            |                          |                          |                              |
| Possible amount of welded parts / Station per hour [Pcs]                                                                       | 50                  |                         |                        |                           |                            |                          |                          |                              |
| Lost of profit per part [€]                                                                                                    | 1,00 €              |                         |                        |                           |                            |                          |                          |                              |
| Lost of profit per hour [€]                                                                                                    | 50,00 €             | 50,00 €                 | 50,00 €                | 50,00 €                   | 50,00 €                    | 50,00 €                  | 50,00 €                  | 50,00 €                      |
| Lost of profit per year [€]                                                                                                    | 27.777,78 €         | 11.904,76 €             | 2.777,78 €             | 1.666,67 €                | 2.777,78 €                 | 2.083,33 €               | 1.666,67 €               | 1.388,89 €                   |
| <b>TOTAL COST</b>                                                                                                              | <b>205.895,87 €</b> | <b>137392,10 €</b>      | <b>105179,08 €</b>     | <b>96179,67 €</b>         | <b>102522,83 €</b>         | <b>97442,39 €</b>        | <b>95117,17 €</b>        | <b>93754,09 €</b>            |
| Cost savings with the use of 20 kg Spool, Speed Pac 52 Nano 40 kg until Speed Pac 75 Gigante XL 250 kg compared to 7 kg Spools |                     |                         |                        |                           |                            |                          |                          |                              |
| <b>Savings for a yearly consumption of 10.000 kg</b>                                                                           |                     | <b>68503,78 €</b>       | <b>100716,80 €</b>     | <b>109716,21 €</b>        | <b>103373,05 €</b>         | <b>108453,48 €</b>       | <b>110778,71 €</b>       | <b>112141,78 €</b>           |



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## Our approvals for MIG welding



Shielding Gas: EN ISO 14175 - I1

\*\*\* = Also for Shielding Gas EN ISO 14175-I3  
only for Lloyd's Register

| APPROVALS - MIG WIRES |      |     |     |    |       |      |      |     |       |      |    |
|-----------------------|------|-----|-----|----|-------|------|------|-----|-------|------|----|
| Alloy                 | Type | mm  | ABS | BV | DNVGL | LR   | RINA | NKK | VdTUV | NAKS | DB |
| 5356                  | MIG  | 0,8 | X   |    | X     | X    | X    | X   | X     |      | X  |
|                       |      | 1,0 | X   |    | X     | X    | X    | X   | X     |      | X  |
|                       |      | 1,2 | X   | X  | X     | X    | X    | X   | X     |      | X  |
|                       |      | 1,6 | X   | X  | X     | X    | X    | X   | X     |      | X  |
|                       |      | 2,0 |     |    |       |      |      |     | X     |      | X  |
|                       |      | 2,4 |     |    |       |      |      |     | X     |      | X  |
| 5183                  | MIG  | 0,8 | X   |    | X     | X*** | X    | X   | X     |      | X  |
|                       |      | 1,0 | X   |    | X     | X*** | X    | X   | X     |      | X  |
|                       |      | 1,2 | X   | X  | X     | X*** | X    | X   | X     |      | X  |
|                       |      | 1,6 | X   | X  | X     | X*** | X    | X   | X     |      | X  |
|                       |      | 2,0 |     |    |       |      |      |     | X     |      | X  |
|                       |      | 2,4 |     |    |       |      |      |     | X     |      | X  |
| 5087                  | MIG  | 0,8 |     |    |       |      |      |     |       |      | X  |
|                       |      | 1,0 |     |    |       |      |      |     |       |      | X  |
|                       |      | 1,2 |     |    |       |      |      |     |       |      | X  |
|                       |      | 1,6 |     |    |       |      |      |     |       |      | X  |
|                       |      | 2,0 |     |    |       |      |      |     |       |      | X  |
|                       |      | 2,4 |     |    |       |      |      |     |       |      | X  |
| 4043                  | MIG  | 0,8 |     |    |       |      |      |     | X     |      | X  |
|                       |      | 1,0 |     |    |       |      |      |     | X     |      | X  |
|                       |      | 1,2 |     |    |       |      |      |     | X     |      | X  |
|                       |      | 1,6 |     |    |       |      |      |     | X     |      | X  |
|                       |      | 2,0 |     |    |       |      |      |     |       |      | X  |
|                       |      | 2,4 |     |    |       |      |      |     |       |      | X  |
| 1450                  | MIG  | 0,8 |     |    |       |      |      |     | X     |      | X  |
|                       |      | 1,0 |     |    |       |      |      |     | X     |      | X  |
|                       |      | 1,2 |     |    |       |      |      |     | X     |      | X  |
|                       |      | 1,6 |     |    |       |      |      |     | X     |      | X  |
|                       |      | 2,0 |     |    |       |      |      |     | X     |      | X  |
|                       |      | 2,4 |     |    |       |      |      |     | X     |      | X  |
| 5554                  | MIG  | 0,8 |     |    |       |      |      |     | X     |      | X  |
|                       |      | 1,0 |     |    |       |      |      |     | X     |      | X  |
|                       |      | 1,2 |     |    |       |      |      |     | X     |      | X  |
|                       |      | 1,6 |     |    |       |      |      |     | X     |      | X  |
|                       |      | 2,0 |     |    |       |      |      |     |       |      |    |
|                       |      | 2,4 |     |    |       |      |      |     |       |      |    |
| 5556A                 | MIG  | 0,8 |     |    |       |      |      |     |       |      |    |
|                       |      | 1,0 |     |    |       |      |      |     |       |      |    |
|                       |      | 1,2 |     |    |       |      |      |     | X     |      |    |



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## Our approvals for TIG welding



Shielding Gas: EN ISO 14175 - I1

| APPROVALS - TIG RODS |      |     |     |    |       |    |      |     |       |      |    |
|----------------------|------|-----|-----|----|-------|----|------|-----|-------|------|----|
| Alloy                | Type | mm  | ABS | BV | DNVGL | LR | RINA | NKK | VdTUV | NAKS | DB |
| 5356                 | TIG  | 1,6 |     |    |       |    |      | X   |       |      | X  |
|                      |      | 2,0 |     |    |       |    |      | X   | X     |      | X  |
|                      |      | 2,4 |     |    |       |    |      | X   | X     |      | X  |
|                      |      | 3,2 |     |    |       |    |      | X   | X     |      | X  |
|                      |      | 4,0 |     |    |       |    |      | X   | X     |      | X  |
|                      |      | 5,0 |     |    |       |    |      | X   | X     |      | X  |
| 5183                 | TIG  | 1,6 |     |    |       |    |      | X   |       |      | X  |
|                      |      | 2,0 |     |    |       |    |      | X   | X     |      | X  |
|                      |      | 2,4 |     |    |       |    |      | X   | X     |      | X  |
|                      |      | 3,2 |     |    |       |    |      | X   | X     | X    | X  |
|                      |      | 4,0 |     |    |       |    |      | X   | X     | X    | X  |
|                      |      | 5,0 |     |    |       |    |      | X   | X     | X    | X  |
| 5087                 | TIG  | 1,6 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 2,0 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 2,4 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 3,2 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 4,0 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 5,0 |     |    |       |    |      |     | X     |      | X  |
| 4043                 | TIG  | 1,6 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 2,0 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 2,4 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 3,2 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 4,0 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 5,0 |     |    |       |    |      |     | X     |      | X  |
| 1450                 | TIG  | 1,6 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 2,0 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 2,4 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 3,2 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 4,0 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 5,0 |     |    |       |    |      |     | X     |      | X  |
| 5554                 | TIG  | 1,6 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 2,0 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 2,4 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 3,2 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 4,0 |     |    |       |    |      |     | X     |      | X  |
|                      |      | 5,0 |     |    |       |    |      |     | X     |      | X  |

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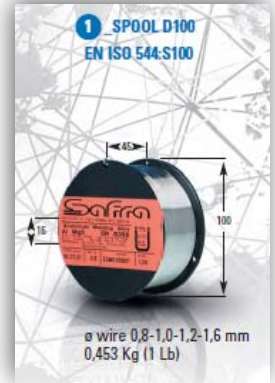
## Types of Safran packaging

### D100 Spool

0,453 Kg spool - Aluminium available for diameters 0,8-1,6 mm

Customer advantage:

- Continuous straight wire feeding for longitudinal and uninterrupted welding seams. (no wire tangling)
  - Simple and fast replacement,
  - Precision layer wound
- Perfect for orbital welding applications and for MIG spool guns



### D 200 Spool

2 Kg spool – Aluminium wire available for diameters 0,8-1,6 mm  
Central hole (52mm)

Customer advantage:

- Continuous straight wire feeding for longitudinal and uninterrupted welding seams. (no wire tangling)
- Simple and fast replacement,
- Precision layer wound
- packed in VCI protecting films

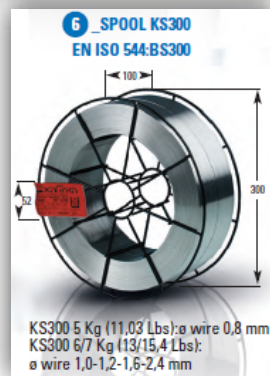
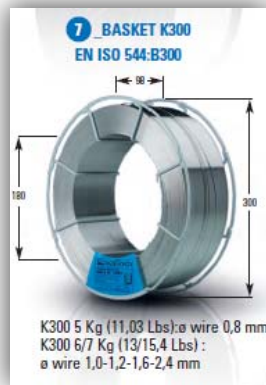


## Types of Safran packaging

### D 300 Spool

5,6 and 7 Kg (9kg US) Spools Aluminium  
available for diameters 0,8-2,4 mm

- Spools with central hole (52mm) and for spool adapter
- Customers can choose between D, BS and KS 300 spools
- Precision layer wound
- packed in VCI protecting films
- Vacuum packaging (optional)  
Long shelf life and difficult storage conditions are possible (optional)
- Packaged under inert conditions < 0.3 % O  
Longer shelf life and difficult storage conditions are possible (optional)



### D350 Spool 20 kg (44 Lbs)

available for diameters 1,2, 1,6-2,4 mm  
Spindle diameter like the 7 kg spool, available in our stock

#### Customer advantage

- Continuous straight wire feeding for longitudinal and
- uninterrupted welding seams. (no wire tangling)
- Simple and fast replacement,
- Increase productivity because of reduction of spool exchanging time
- Precision layer wound
- Bigger cast at the 5XXX series Aluminium alloys on 7 kg spools
- simple solution for automation with a pay-off stand



## Types of Safran packaging

### K400 Spool 40kg

available for diameters 0,8-2,4 mm

#### Customer advantage

- Continuous straight wire feeding for longitudinal and
- uninterrupted welding seams. (no wire tangling)
- Simple and fast replacement,
- Increase productivity because of reduction of spool exchanging time
- Precision layer wound
- Bigger cast at the 5XXX series Aluminium alloys on 7 kg spools

#### Optional

- Pay-off Machine
- Pay-off stand for a simple setup for automatic welding

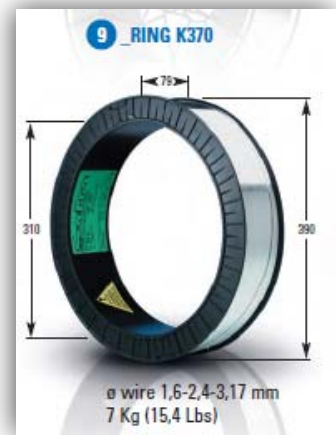


### 7 kg Ring for thermal spraying

7 Kg Ring for Aluminium alloys for diameters 1,6 – 3,17 mm

#### Customer advantage

- very good wire feeding for spraying operations because of the smooth aluminium wire surface
- packed in VCI protecting films



## Types of Safran packaging

### TIG rods

Available 2 Kg, 5 Kg and 10 Kg packages for Aluminium alloys for rod diameters Ø 1,6 – 5,0 mm (Ø 1,2 mm or 500 mm length only of request)

#### Customer advantage

- very clean wire surface for x-ray quality welds
- always straight rods
- packed in VCI protecting films
- Embosses on one side with double stamp as standard  
**(Option - customers can have embosses on both sides with double stamp)**
- 1000 mm length / 36in (914 mm).



## Safra Standard Accessories

| Product                                                 | Item Number | Image                                                                                 |
|---------------------------------------------------------|-------------|---------------------------------------------------------------------------------------|
| Plastic Hood for the Ø 520 mm drum                      | 9910000003  |    |
| Plastic Hood for the square 600 mm drum                 | 9910000004  |    |
| Plastic Hood for the Ø 650 mm drum                      | 9910000005  |   |
| Plastic Hood for the Ø 750 mm drum                      | 9910000027  |  |
| Wire Pay-Off System for 0,8 – 1,60 mm wires             |             |                                                                                       |
| Ø 520 mm – Round Drum                                   | 9910000010  |   |
| □ 600 mm – Square Drum                                  | 9910000015  |                                                                                       |
| Ø 650 mm – Round Drum                                   | 9910000014  |                                                                                       |
| Ø 750 mm – Round Drum                                   | 9910000026  |                                                                                       |
| Single Cone with Orbital Arm<br>Drum without inner core |             |                                                                                       |

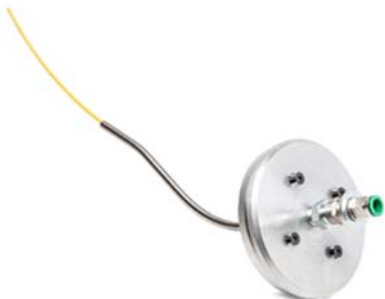


## Safra Standard Accessories

| Product                                                                                                                                                                     | Item Number | Image                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------|
| Mounting plate for wire straightener<br>(9910000016 and 9910000017) on plastic<br>hood (9910000003, 9910000004,<br>9910000005, 910000027)<br><b>Patent Pending E0108768</b> | 9910000028  |    |
| <b>Wire Pay Off System - Doppel Cone</b>                                                                                                                                    |             |                                                                                       |
| □ 600 mm – Square Drum                                                                                                                                                      | 9910000008  |     |
| Ø 650 mm – Round Drum                                                                                                                                                       | 9910000007  |                                                                                       |
| Ø 750 mm – Round Drum                                                                                                                                                       | 9910000036  |                                                                                       |
| Wooden Balls small Ø 40 mm<br>not fumigated<br>(70 Balls per Set)                                                                                                           | 9910000006  |  |
| Wooden Balls small Ø 40 mm<br>fumigated (outside of the EU)<br>(70 Balls per Set)                                                                                           | 9910000024  |                                                                                       |
| Wire Connector for all drums<br>(Plastic Hood - Wire Conduit)<br>with Ceramic for the Safra wire conduit                                                                    | 9910000009  |   |
| Wire Conduit – MOQ 5 meter<br>incl. 2 Plastic PG – Connector<br><i>Please submit the maximum length when you place a<br/>purchase order</i>                                 | 9910000011  |   |

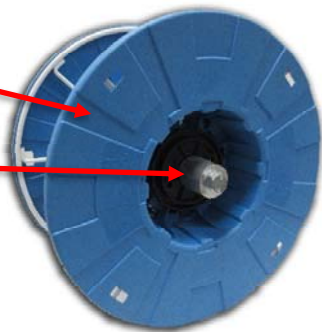


## Safran Standard Accessories

| Product                                                                                                                                                                                                         | Item Number | Image                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------|
| Wire Straightener two plan<br>with connector for the mounting plate<br><i>(five roller each for 4XXX series wire)</i><br><i>Patent Pending E0108768</i>                                                         | 9910000016  |    |
| Wire Straightener two plan<br>with connector for the mounting plate<br><i>(seven roller each for 5XXX series wire)</i><br><i>Patent Pending E0108768</i>                                                        | 9910000017  |    |
| Inner Orbital Arm incl. PTFE Liner<br>For drums with Ø 520 mm<br>Aluminium wire diameter 0,8 – 1,60 mm<br><u>For drums with an inner core</u>                                                                   | 9910000018  |   |
| Inner Orbital Arm incl. HDPE Liner<br>For drums Ø 650 mm and □ 600 mm<br>included connector for the Safran wire<br>conduit.<br><br>Aluminium wire Diameter<br>0,8 – 1,60 mm<br><u>For drums with inner core</u> | 9910000019  |  |



## Safran Standard Accessories

| Product                                                                                                                                                                                                                                                                                                                    | Item Number                         | Image                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------|
| Wire feeder for K400 (40 kg Spool)                                                                                                                                                                                                                                                                                         | 9910000020                          |   |
| <p>Spool adapter for the K400 (40 kg) spool.<br/>Simple application for automatic welding<br/>on Robots or welding gantries</p> <p>Spindle with spool brake for holding the<br/>spool adapter</p> <p><i>Both articles are necessary so that you can safely operate<br/>the spool on a frame or on the Safran stand</i></p> | <p>9910000038</p> <p>9910000037</p> |   |
| <p>Spindle with spool brake for holding up the<br/>D350 (20 kg) spool on the Safran pay-off<br/>stand (article no. 9910000039).</p> <p><i>Here is no spool adapter necessary<br/>The spindle with the spool is mounted directly on the<br/>Safran pay-off stand<br/>(Article No. 9910000039) or on a frame.</i></p>        | 9910000035                          |  |

## Safra Standard Accessories

| Product                                                                                                               | Item Number | Image                                                                               |
|-----------------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------|
| Pay-off stand for D350 (20 kg) and K400 (40 kg) spools                                                                | 9910000039  |   |
| Simple solution to increase productivity                                                                              |             |                                                                                     |
| Complete rack for<br>Ø 520 mm – 650 mm drums<br>(Without wire feeding system<br>Incl. 9910000021, 9910000029          | 9910000031  |  |
| Complete stand for Ø 750 mm drums<br>(Without wire feeding system Incl.<br>9910000032, 9910000033)                    | 9910000034  |                                                                                     |
| Drum rack for Ø 520 - 650 mm drums                                                                                    | 9910000021  |                                                                                     |
| Drum rack for Ø 750 mm drums                                                                                          | 9910000032  |                                                                                     |
| Mounting Plate for the Fronius WF25 R2<br>and R4 feeding unit to add it on the<br>Ø 520 – 650 drum and Ø 750 mm stand | 9910000030  |                                                                                     |
| Trolley for Ø 520 - 650 mm drums                                                                                      | 9910000029  |                                                                                     |
| Trolley for Ø 750 mm drum                                                                                             | 9910000033  |                                                                                     |

We will join the future.

| Safron Aluminium Packaging System                                                            |                                                                                                                   |                         |                         |                               |                                  |                               |                                   |                                 |                                    |                                     |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------|-------------------------------|----------------------------------|-------------------------------|-----------------------------------|---------------------------------|------------------------------------|-------------------------------------|
| A complete range of accessories for a successful setup of the Safron spool and drum packages |                                                                                                                   |                         |                         |                               |                                  |                               |                                   |                                 |                                    |                                     |
| Accessories for 4XXX Series Products                                                         |                                                                                                                   |                         |                         |                               |                                  |                               |                                   |                                 |                                    | 20180404                            |
| Item no.                                                                                     | Product description                                                                                               | D 350 Spool<br>Ø 350 mm | K 400 Spool<br>Ø 400 mm | Speed Pac<br>Nano<br>Ø 520 mm | Speed Pac<br>Piccolo<br>Ø 650 mm | Speed Pac<br>Square<br>600 mm | Speed Pac<br>Standard<br>Ø 520 mm | Speed Pac<br>Grande<br>Ø 650 mm | Speed Pac<br>Gigante L<br>Ø 750 mm | Speed Pac<br>Gigante XL<br>Ø 750 mm |
| 991000003                                                                                    | Plastic Hood Ø 520 mm (Round)                                                                                     | -                       | -                       | X                             | -                                | -                             | X                                 | -                               | -                                  | -                                   |
| 991000004                                                                                    | Plastic Hood 600 mm (Square)                                                                                      | -                       | -                       | -                             | -                                | X                             | -                                 | -                               | -                                  | -                                   |
| 991000005                                                                                    | Plastic Hood Ø 650 mm (Round)                                                                                     | -                       | -                       | -                             | X                                | -                             | -                                 | X                               | -                                  | -                                   |
| 991000027                                                                                    | Plastic Hood with Adapter Ø 750 mm (Round)                                                                        | -                       | -                       | -                             | -                                | -                             | -                                 | -                               | X                                  | X                                   |
| 991000006                                                                                    | Wooden Balls small Ø 40 mm (70 balls per Set) - <b>non fumigated</b>                                              | -                       | -                       | X                             | -                                | -                             | X                                 | -                               | -                                  | -                                   |
| 991000024                                                                                    | Wooden Balls small Ø 40 mm (70 balls per Set) - <b>fumigated</b>                                                  | -                       | -                       | X                             | -                                | -                             | X                                 | -                               | -                                  | -                                   |
| 991000007                                                                                    | Wire Pay Off System (Ø 650 mm - round drum) - Doppel Cone                                                         | -                       | -                       | -                             | X                                | -                             | -                                 | X                               | -                                  | -                                   |
| 991000008                                                                                    | Wire Pay Off System (Ø 600 mm - square drum) - Doppel Cone                                                        | -                       | -                       | -                             | -                                | X                             | -                                 | -                               | -                                  | -                                   |
| 991000036                                                                                    | Wire Pay Off System (Ø 750 mm - round drum) - Doppel Cone                                                         | -                       | -                       | -                             | -                                | -                             | -                                 | -                               | X                                  | X                                   |
| 991000009                                                                                    | Wire Connector with Ceramic inlet, for the Ø 520 / 600 / Ø 650 mm drum (Plastic Hood - Wire Conduit)              | -                       | -                       | X                             | X                                | X                             | X                                 | X                               | X                                  | X                                   |
| 991000011                                                                                    | Wire Conduit - MOQ 5 m incl. 2 Plastic PG Connector                                                               | -                       | -                       | X                             | X                                | X                             | X                                 | X                               | X                                  | X                                   |
| X* more mobility in production, use a trolley                                                |                                                                                                                   |                         |                         |                               |                                  |                               |                                   |                                 |                                    |                                     |
| Accessories for 5XXX Series Products                                                         |                                                                                                                   |                         |                         |                               |                                  |                               |                                   |                                 |                                    |                                     |
| Item no.                                                                                     | Product description                                                                                               | D 350 Spool<br>Ø 350 mm | K 400 Spool<br>Ø 400 mm | Speed Pac<br>Nano<br>Ø 520 mm | Speed Pac<br>Piccolo<br>Ø 650 mm | Speed Pac<br>Square<br>600 mm | Speed Pac<br>Standard<br>Ø 520 mm | Speed Pac<br>Grande<br>Ø 650 mm | Speed Pac<br>Gigante L<br>Ø 750 mm | Speed Pac<br>Gigante XL<br>Ø 750 mm |
| 991000003                                                                                    | Plastic Hood Ø 520 mm (Round)                                                                                     | -                       | -                       | X                             | -                                | -                             | X                                 | -                               | -                                  | -                                   |
| 991000004                                                                                    | Plastic Hood 600 mm (Square)                                                                                      | -                       | -                       | -                             | -                                | X                             | -                                 | -                               | -                                  | -                                   |
| 991000005                                                                                    | Plastic Hood Ø 650 mm (Round)                                                                                     | -                       | -                       | -                             | X                                | -                             | -                                 | X                               | -                                  | -                                   |
| 991000027                                                                                    | Plastic Hood with Adapter Ø 750 mm (Round)                                                                        | -                       | -                       | -                             | -                                | -                             | -                                 | -                               | X                                  | X                                   |
| 991000006                                                                                    | Wooden Balls small Ø 40 mm (70 balls per Set) - <b>non fumigated</b> , by using an inner core in the drum package | -                       | -                       | X                             | -                                | -                             | X                                 | -                               | -                                  | -                                   |
| 991000024                                                                                    | Wooden Balls small Ø 40 mm (70 balls per Set) - <b>fumigated</b> , by using an inner core in the drum package     | -                       | -                       | X                             | -                                | -                             | X                                 | -                               | -                                  | -                                   |
| 991000014                                                                                    | Wire Pay Off System (Ø 650 mm) - Single Cone with Orbital Arm                                                     | -                       | -                       | -                             | X                                | -                             | -                                 | X                               | -                                  | -                                   |
| 991000015                                                                                    | Wire Pay Off System (Square drum 600 mm) - Single Cone with Orbital Arm                                           | -                       | -                       | -                             | -                                | X                             | -                                 | -                               | -                                  | -                                   |
| 991000026                                                                                    | Wire Pay Off System (Ø 750 mm) - Single Cone with Orbital Arm                                                     | -                       | -                       | -                             | -                                | -                             | -                                 | -                               | X                                  | X                                   |
| 991000009                                                                                    | Wire Connector for all drums (Plastic Hood - Wire Conduit) with Ceramic for the blue wire conduit                 | -                       | -                       | X                             | X                                | X                             | X                                 | X                               | X                                  | X                                   |
| 991000011                                                                                    | Wire Conduit - MOQ 5 m incl. 2 Plastic PG Connector                                                               | -                       | -                       | X                             | X                                | X                             | X                                 | X                               | X                                  | X                                   |
| X* more mobility in production, use a trolley                                                |                                                                                                                   |                         |                         |                               |                                  |                               |                                   |                                 |                                    |                                     |

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## Safra Aluminium Packaging System

A complete range of accessories for a successful setup of the Safra spool and drum packages

| 20180404                                              |                                                                                                                                                                             |                         |                         |                               |                                  |                               |                                   |                                 |                                    |                                     |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------|-------------------------------|----------------------------------|-------------------------------|-----------------------------------|---------------------------------|------------------------------------|-------------------------------------|
| Options for all several different Safra drum packages |                                                                                                                                                                             | D 350 spool<br>Ø 350 mm | K 400 spool<br>Ø 400 mm | Speed Pac<br>Nano<br>Ø 520 mm | Speed Pac<br>Piccolo<br>Ø 650 mm | Speed Pac<br>Square<br>600 mm | Speed Pac<br>Standard<br>Ø 520 mm | Speed Pac<br>Grande<br>Ø 650 mm | Speed Pac<br>Gigante L<br>Ø 750 mm | Speed Pac<br>Gigante XL<br>Ø 750 mm |
| Optional                                              | For welding longitudinal welds without tangeling wires out of the contact tip / outlet nozzle                                                                               |                         |                         |                               |                                  |                               |                                   |                                 |                                    |                                     |
| Item no.                                              | Product description                                                                                                                                                         | 20 kg                   | 40 kg                   |                               |                                  |                               |                                   |                                 |                                    |                                     |
| 9910000016                                            | Wire Straightener two plan (five roller each for 4XXX series wire)                                                                                                          | -                       | -                       | X                             | X                                | X                             | X                                 | X                               | X                                  | X                                   |
| 9910000017                                            | Wire Straightener two plan (seven roller each for 5XXX series wire)                                                                                                         | -                       | -                       | X                             | X                                | X                             | X                                 | X                               | X                                  | X                                   |
| 9910000028                                            | Mounting plate for wire straightener (9910000016 and 9910000017) on plastic hood (9910000003, 9910000004, 9910000005,                                                       | -                       | -                       | X                             | X                                | X                             | X                                 | X                               | X                                  | X                                   |
| Optional                                              | Wire pay off sytems for Safra drums in order to avoid twisting issues                                                                                                       |                         |                         |                               |                                  |                               |                                   |                                 |                                    |                                     |
| Item no.                                              | Product description                                                                                                                                                         | 20 kg                   | 40 kg                   |                               |                                  |                               |                                   |                                 |                                    |                                     |
| 9910000018                                            | Inner Orbital Arm incl. PTFE Liner (Ø 520 mm)                                                                                                                               | -                       | -                       | X                             | -                                |                               | X                                 | -                               | -                                  | -                                   |
| 9910000019                                            | Inner Orbital Arm incl. PTFE Liner (Ø 650 mm, Square 600 mm drum)                                                                                                           | -                       | -                       | -                             | X                                |                               | -                                 | X                               | -                                  | -                                   |
| 9910000010                                            | Wire Pay Off System (Ø 520 mm) - Single Cone with Orbital Arm - for 5000 Series Aluminium wire                                                                              | -                       | -                       | X                             | -                                | -                             | X                                 | -                               | -                                  | -                                   |
| Optional                                              | For 40 kg / K 400 Spool                                                                                                                                                     |                         |                         |                               |                                  |                               |                                   |                                 |                                    |                                     |
| Item no.                                              | Product description                                                                                                                                                         | 20 kg                   | 40 kg                   |                               |                                  |                               |                                   |                                 |                                    |                                     |
| 9910000020                                            | Wire feeder for K400 (40 kg spool)                                                                                                                                          | -                       | -                       | -                             | -                                |                               | -                                 | -                               | -                                  | -                                   |
| 9910000038                                            | Spool adapter for the K 400 spool                                                                                                                                           | -                       | X                       | -                             | -                                | -                             | -                                 | -                               | -                                  | -                                   |
| 9910000037                                            | Spindle with spindle brake for spool adapter K 400 spool                                                                                                                    | -                       | X                       | -                             | -                                | -                             | -                                 | -                               | -                                  | -                                   |
| 9910000039                                            | Pay-off stand for K 400 or D 350 spools                                                                                                                                     | X                       | X                       | -                             | -                                | -                             | -                                 | -                               | -                                  | -                                   |
| 9910000035                                            | Spindle with spindle brake for holding the D 350 spool                                                                                                                      | X                       | -                       | -                             | -                                | -                             | -                                 | -                               | -                                  | -                                   |
| Optional                                              | For welding longitudinale welding seams / installation of a wire conduit lengh over > 10 m                                                                                  |                         |                         |                               |                                  |                               |                                   |                                 |                                    |                                     |
| Item no.                                              | Product description                                                                                                                                                         | 20 kg                   | 40 kg                   |                               |                                  |                               |                                   |                                 |                                    |                                     |
| 9910000021                                            | Drum rack for drum diameter Ø 520 - 650 mm                                                                                                                                  | -                       | -                       | X                             | X                                | X                             | X                                 | X                               | -                                  | -                                   |
| 9910000029                                            | Trolley for drum diameter Ø 520 - 650 mm                                                                                                                                    | -                       | -                       | X²                            | X²                               | X²                            | X²                                | X²                              | -                                  | -                                   |
| 9910000030                                            | Mounting plate for the Fronius wire feeder WF25 R2 and R4                                                                                                                   | -                       | -                       | X                             | X                                | X                             | X                                 | X                               | -                                  | -                                   |
| 9910000031                                            | Complete drum rack for the drum diameter Ø 520 - 650 mm, von 40 - 200 kg Aluminium wire volume (without Fronius feeding unit)                                               | -                       | -                       | X                             | X                                | X                             | X                                 | X                               | -                                  | -                                   |
| 9910000032                                            | Drum rack for drum diameter Ø 750 mm                                                                                                                                        | -                       | -                       | -                             | -                                | -                             | -                                 | -                               | X                                  | X                                   |
| 9910000033                                            | Trolley for drum diameter Ø 750 mm - 250 kg                                                                                                                                 | -                       | -                       | -                             | -                                | -                             | -                                 | -                               | X                                  | X                                   |
| 9910000034                                            | Complete drum rack for the drum diameter Ø 750 mm and 250 kg Aluminium wire volume (without Fronius feeding unit) Item number 9910000032, 9910000033, 9910000030 (optional) | -                       | -                       | -                             | -                                | -                             | -                                 | -                               | X                                  | X                                   |

X² more mobility in production, use a trolley

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## Our company history

Safra was founded in 1970 by the Sala family in Travagliato near Brescia (Italy).

The Safra group of companies is 100% owned by the Sala family.

In 1997, Safra bought the company MIGWELD in Dijon/France.

With its very high quality and competitiveness, Safra expanded its business worldwide.

In 2001, Safra built the Bralco copper foundry in Salvador de Bahia in Brazil.

This means we control the process chain from strand casting to the finished copper wire electrode alloy.

We can therefore produce customer-specific copper alloys for your application.

## Our market presence



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