



# Configuration recommendation torch bodies, consumables, cleaning

Fronius International, PM Welding torches 13.8.2021  
Information Class: Confidential



# Current situation



- Robot torch bodies are available **with wear parts** and **without wear parts**
- Mostly the standard torch body with wear parts (spatter guard system) is ordered
- **Advantages**
  - + suitable for all material
  - + easy order and configuration process, torch body is delivered ready to weld
- **Challenges**
  - No good cleaning result with spatter guard in case of steel applications
  - this leads to problems at the customer (lot of service and retrofit actions necessary)

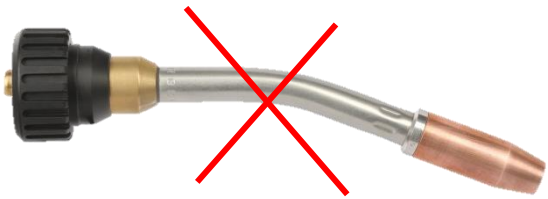
# Changes



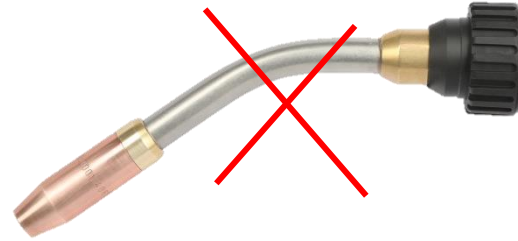
- Switch to torch bodies **without wear parts**
- Wear parts must be **configured separately depending on the application**
- Therefore Fronius Int. will provide a clear recommendation: **Torch body, wear parts, cleaning**
- **Advantages**
  - + customer will receive the best wear part and cleaning solution for his application from the beginning
  - + reduced service and retrofit costs
- **Challenges**
  - more complex order and configuration process

# Reduction of torch body variants

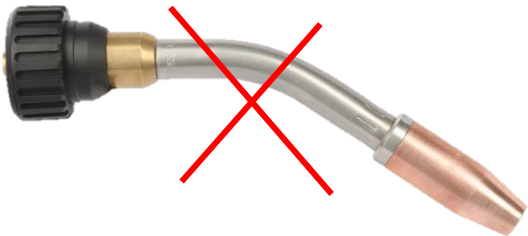
- **Not relevant for Robotics (no advantage)**
  - only available as replacement torches for existing installations



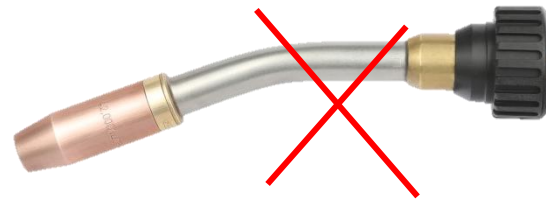
MTB 250i G R



MTB 250i W R

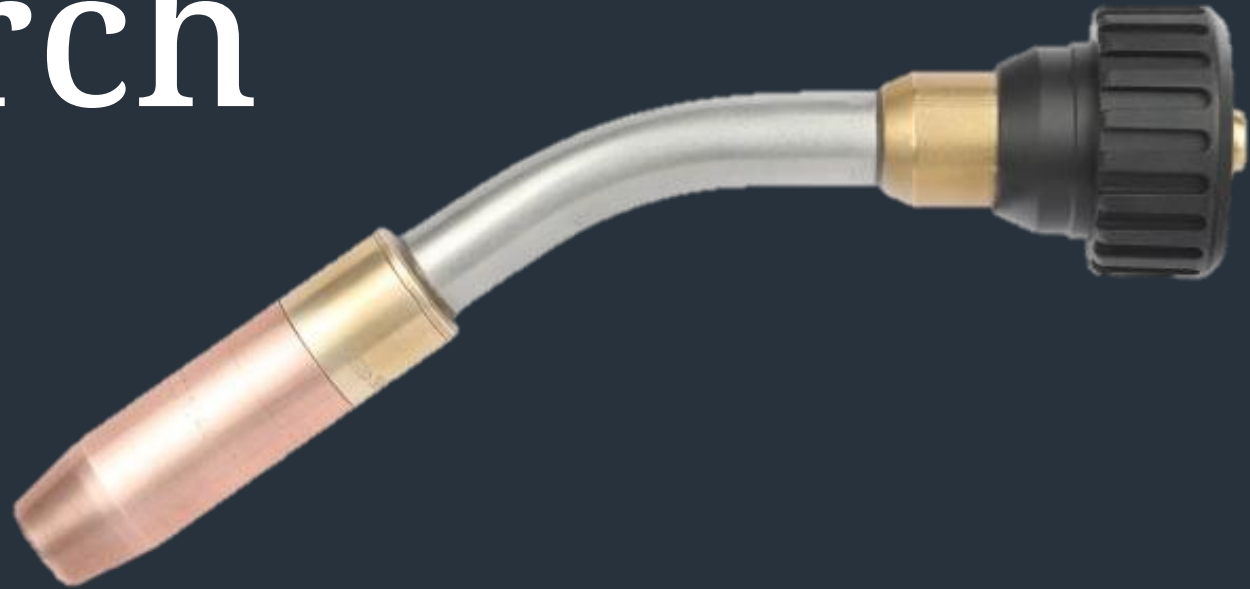


MTB 320i G R



MTB 400i W R

# Robot torch bodies



# Torch bodies MTB G R / MTB W R = MIG/MAG Torch Body Gascooled / Watercooled Robot

Standard for gascooled



MTB 400i G R



High performance

MTB 500S G R



MTB 500S G R US



Accessibility

MTB 330i G R



MTB 350i G R



Standard for watercooled



MTB 500i W R



High performance

MTB 700i W R



Accessibility

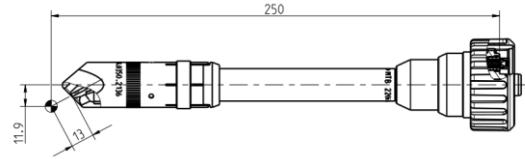
MTB 330i W R



MTB 350i W R

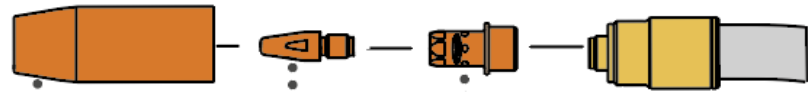


MTB 220i W R narrow gap



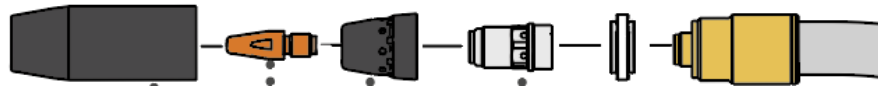
# Wear parts

the right wear parts for every application



## Wear parts for Steel / CrNi

- With insulated gas nozzle or insulating sleeve
- For optimum cleaning by means of a milling tool or TC 2000

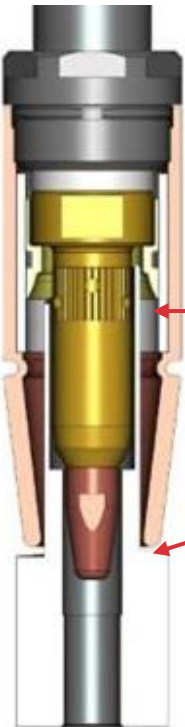


## Wear parts for Aluminium / CuSi

- With spatter guard for optimum gas protection
- Coated gas nozzle for optimal cleaning with brush

# Gas nozzle milling tool with cleaning of the gas nozzle end face

- For steel and CrNi applications, new gas nozzle cutters are now available that also clean the gas nozzle face.
- In case of a high volume of spatter, the spatter ring in the front gas nozzle area builds up and heats up. This heat is transferred to the gas nozzle and has a negative effect on the temperature balance of the gas nozzle. For this reason, cleaning the front surface is necessary.



**Cleaning of the wear part interior** up to the gas bores to restore optimum gas protection. The milling tools are perfectly matched to the sleeve system wear parts, which are used for steel and CrNi applications.

**New: Cleaning of gas nozzle end face**



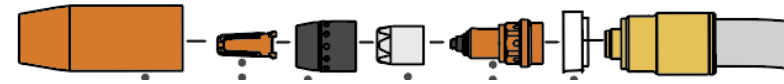
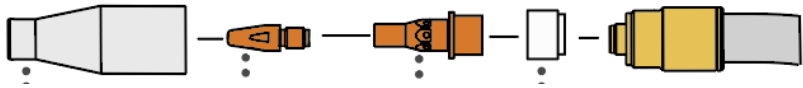
# Gas nozzle milling tool with cleaning of the gas nozzle end face

- The new gas nozzle milling tools are perfectly adjusted to the interior of the sleeve system wear parts and to the gas nozzle diameter and length.

| Torch body type       | Wear parts                                                    | Article number<br>milling tool |
|-----------------------|---------------------------------------------------------------|--------------------------------|
| MTB 500i W R          | Gas nozzle ø15 44,0350,3935,5                                 | 44,0450,0112                   |
|                       | Gas nozzle ø17 44,0350,3936,5                                 | 44,0450,0113                   |
| MTB 330i W R          | Gas nozzle ø13 42,0001,0547,5                                 | 44,0450,0122                   |
| MTB 400i G R          | Gas nozzle ø17 42,0001,4049,5                                 | 44,0450,0119                   |
|                       | Gas nozzle ø17 HD 42,0001,1275,5                              |                                |
|                       | Gas nozzle ø15 42,0001,4052,5                                 | 44,0450,0118                   |
| MTB 500S G R          | Gas nozzle ø15 44,0350,0222,5 / Contact tip M6                | 44,0450,0010                   |
|                       | Gas nozzle ø15 44,0350,0222,5 / Contact tip M8x1,5            | 44,0450,0011                   |
|                       | Gas nozzle ø17 44,0350,0753,5 / Contact tip M6                | 44,0450,0027                   |
|                       | Gas nozzle ø17 44,0350,0753,5 / Contact tip M8x1,5            | 44,0450,0028                   |
| MTB 500S G R US-Style | Gas nozzle 44,0350,0059,5 / brass nozzle stock 42,0001,6639,5 | 44,0450,0116                   |
| MTB 330i G R          | Gas nozzle ø13 42,0001,0547,5                                 | 44,0450,0123                   |
|                       | Gas nozzle ø15 short 42,0001,0513,5                           | 44,0450,0124                   |

# Wear parts

the right wear parts for every application



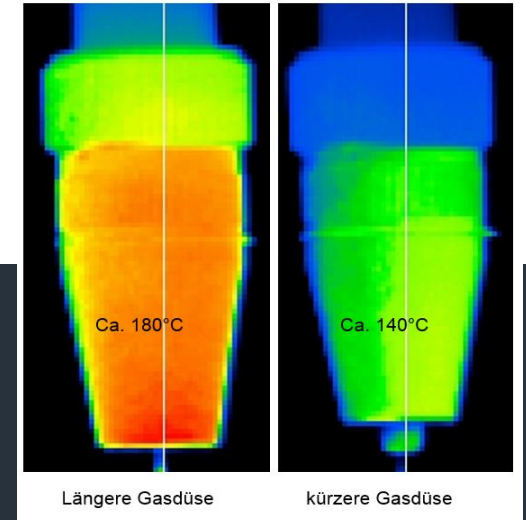
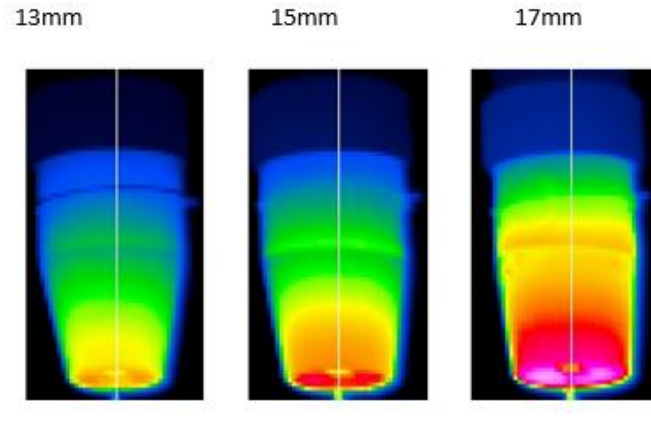
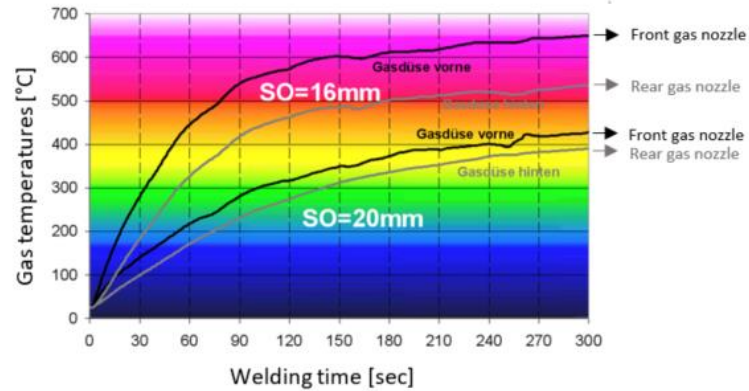
## Narrow gap

- Optimised accessibility due to narrow gas nozzle
- Attention! Automated cleaning limited

## Contec

- for aluminum and CuSi and for applications requiring a constant contacting point
- 100 % consistent contacting
- Increased tool life
- Increased process stability
- Constant Tool Center Point (TCP)

# Recommendation for achieving particularly long service lives of wear parts



**Stick out as big as possible**

Temperature comparison of gas nozzles with stick out 16mm and stick out 20mm

**Gas nozzle opening as small as possible**

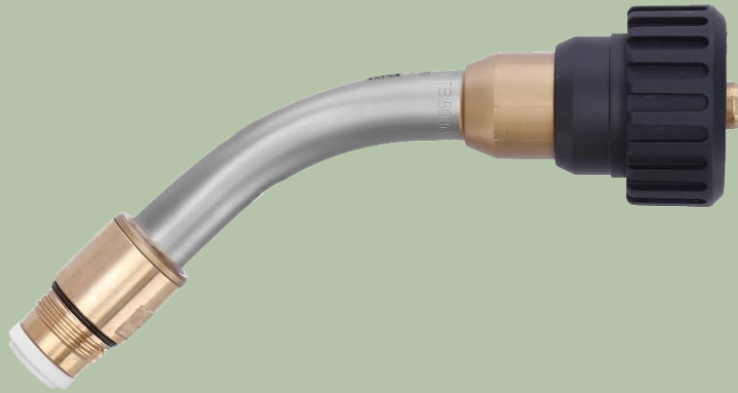
Comparison of different gas nozzle openings

**Gas nozzle as short as possible** (up to 5mm shorter for steel applications)

Each comparison has been carried out with the same welding torch and the same process.

# MTB 500i W R

Recommended torch body for watercooled applications



- **Compatible with**
- Robacta CTC (Automated contact tip change)
- Robacta TX/i (Automated torch body change)
- Exento Robotics (Fume extraction set)

# MTB 500i W R

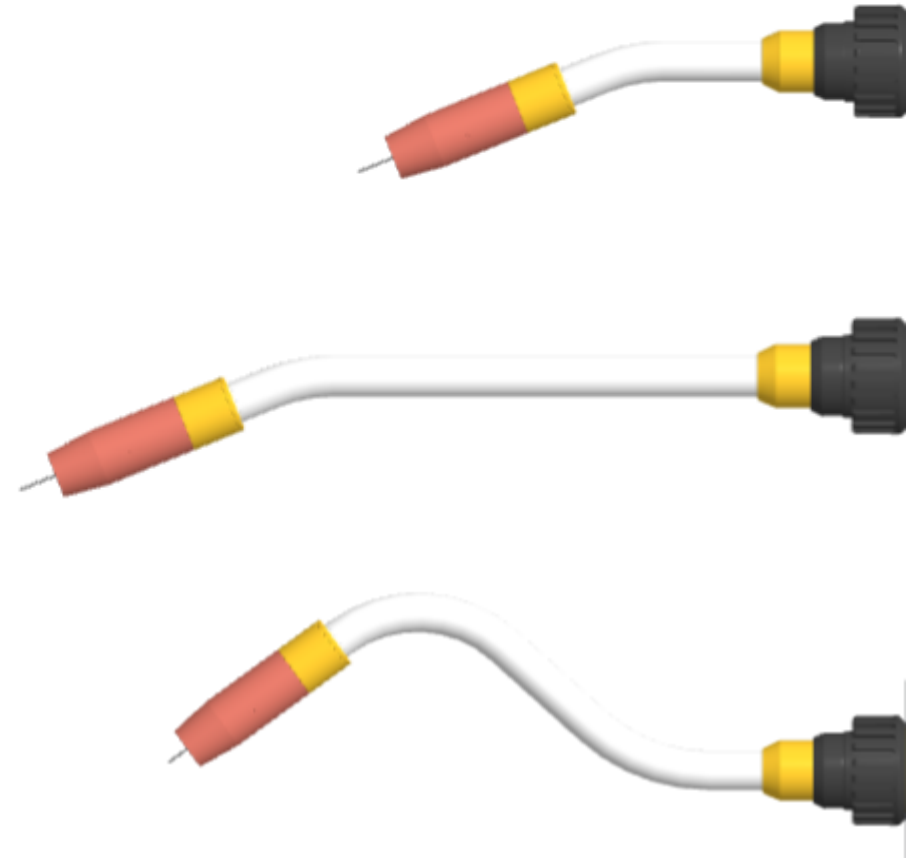
## – MTB 500i W R torch bodies

- 44,0350,3494,630 MTB 500i W R/22°/L241/H50
- 44,0350,3495,630 MTB 500i W R/36°/L224/H86
- 44,0350,3496,630 MTB 500i W R/45°/L209/H107
- 44,0350,1394,630 MTB 500i W R OVT/0°/L250

## – MTB 500i W R torch bodies – long variants

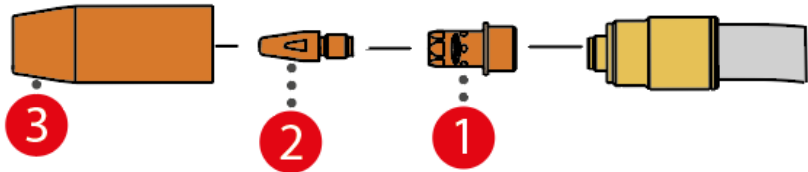
- 44,0350,4302,630 MTB 500i W R OVT/22°/L383/H50
- 44,0350,4303,630 MTB 500i W R OVT/36°/L366/H86
- 44,0350,4304,630 MTB 500i W R OVT/45°/L351/H107
- 44,0350,4262,630 MTB 500i W R OVT/36°/L338/S-Type
- 44,0350,1402,630 MTB 500i W R OVT/0°/L392

**Important:** Torch body  
with end number ,630 =  
without wear parts



# Steel / CrNi applications

## Wear parts



- 1) 42,0001,4651,5 Nozzle stock M8x1,5
- 2) Contact tip M8x1,5 for Steel and CrNi
- 3a) **Insulated Gas nozzle ø15:**
  - 44,0350,3935,5 Gas nozzle ø15
  - 44,0450,0112 gas nozzle milling tool
- 3b) **Insulated Gas nozzle ø17:**
  - 44,0350,3936,5 Gas nozzle ø17
  - 44,0450,0113 Gas nozzle milling tool

## Cleaning

### Robacta Reamer

Mechanische Reinigung mit Fräser



### Robacta TC 2000

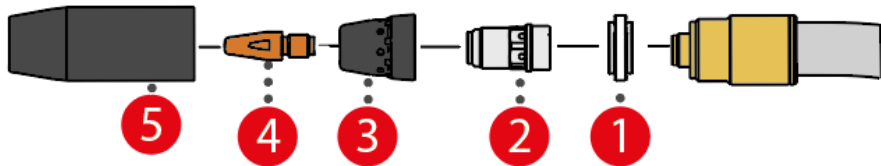
Magnetical cleaning



Further information see presentation torch cleaning and changing systems. [Link](#)

# Aluminium / CuSi applications

## Wear parts



- 1) 42,0100,1329,5 Insulation ring
- 2) 42,0001,4037,5 Nozzle stock
- 3) 42,0100,0591,5 Spatter guard ceramic\*  
42,0405,0854,5 Spatter guard
- 4) Contact tip M8x1,5 for Aluminum
- 5a) 42,0001,4494,5 Gas nozzle  $\varnothing 17/\varnothing 25 \times 61$  coated
- 5b) 42,0001,4496,5 Gas nozzle  $\varnothing 15/\varnothing 25 \times 61$  coated
- 5c) 42,0001,4497,5 Gas nozzle  $\varnothing 13/\varnothing 25 \times 61$  coated
- \*recommended

## Cleaning

### Robacta Reamer brush head

Mechanical cleaning with special brush head

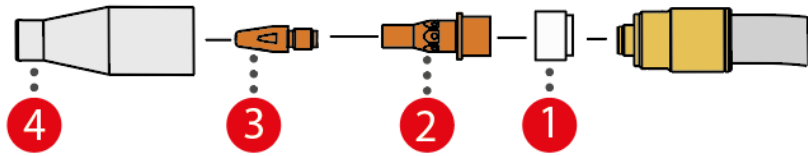


Further information see presentation torch cleaning and changing systems. [Link](#)

# Narrow gap

## Narrow gap

Use only for accessibility reasons



- 1) 42,0100,1497,5 Insulation ring
- 2) 42,0001,4919,5 Nozzle stock
- 3) Contact tip M6
- 5) 42,0001,4917,5 Gas nozzle narrow gap  
44,0450,1485 Milling tool

## Cleaning

Attention: limited automated cleaning

Steel:

Robacta Reamer / TC 2000



Aluminum:

Robacta Reamer  
brush head

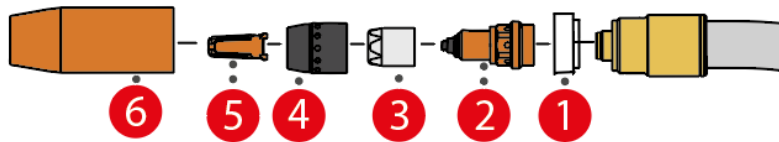


Further information see presentation torch cleaning and changing systems. [Link](#)



# Contec for best contacting

## Contec



- 1) 42,0100,1371 Insulation ring
- 2) 44,0350,3426 Nozzle stock Contec MD
- 3) 42,0001,6336 Clamping nut
- 4) 42,0100,1156 spatter guard
- 5) 42,0001,3912,10 / 42,0001,3912,100 Contec shells
- 6a ) **Gasdüsen coated for Aluminium / CuSi**
  - 42,0001,4494,5 gas nozzle  $\varnothing 17$
  - 42,0001,4496,5 gas nozzle  $\varnothing 15$
  - 42,0001,4497,5 gas nozzle  $\varnothing 13$
- 6b) **Gas nozzle  $\varnothing 17$  for steel / CrNi:**
  - 42,0001,4476,5 Gas nozzle  $\varnothing 17$  / 44,0450,1486 Gas nozzle milling tool
- 6c) **Gas nozzle  $\varnothing 15$  for steel / CrNi :**
  - 42,0001,4474,5 Gas nozzle  $\varnothing 15$  / 44,0450,1385 Gas nozzle milling tool
- 6d) **Gas nozzle  $\varnothing 13$  for steel / CrNi :**
  - 42,0001,4086,5 Gas nozzle  $\varnothing 13$

## Cleaning

Attention: limited automated cleaning

**Steel:**

**Robacta Reamer / TC 2000**



**Aluminum:**

**Robacta Reamer  
brush head**



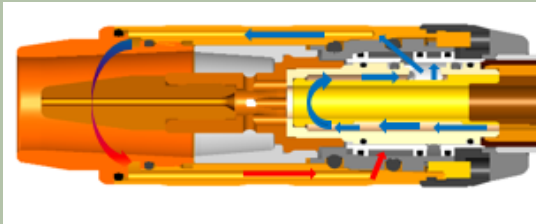
Further information see presentation torch cleaning and changing systems. [Link](#)

# MTB 700i W R

Torch body for high performance applications, with watercooled gas nozzle



- **Compatible with**
- Robacta TX/i (automated torch body change)
- Exento Robotics (fume extraction set)



# MTB 700i W R

## – MTB 700i W R torch bodies

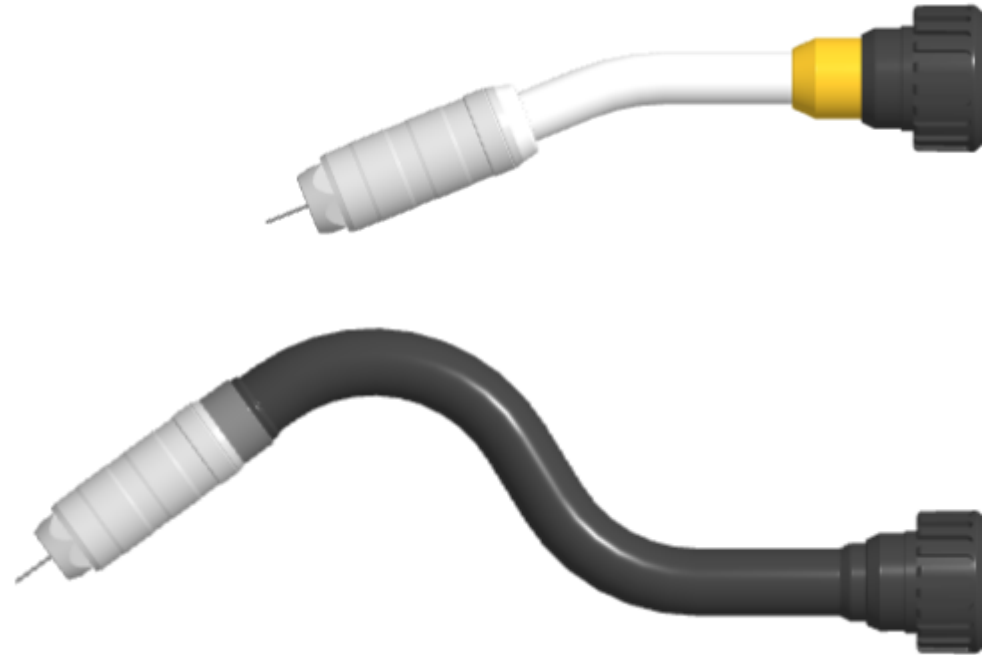
- 44,0350,3657 MTB 700i W R/22°/L241/H50
- 44,0350,3658 MTB 700i W R/36°/L224/H86
- 44,0350,3659 MTB 700i W R/45°/L209/H107
- 44,0350,4512 MTB 700i W R S-Type /36°/L338

## – MTB 700i W R torch bodies

- 44,0350,3657,630 MTB 700i W R/22°/L241/H50
- 44,0350,3658,630 MTB 700i W R/36°/L224/H86
- 44,0350,3659,630 MTB 700i W R/45°/L209/H107
- 44,0350,4512,630 MTB 700i W R S-Type /36°/L338

*Without wear parts*

*With wear parts*  
Standard wear parts fit for  
90% of the applications



# MTB 330i W R

**Application: Component accessibility requires a short torch head**



- **Compatible with**
- Robacta CTC (automated contact tip change)
- Robacta TX/i (FumeEx Robotics (fume extraction set)
- Exento Robotics (fume extraction set)

# MTB 330i W R

**Important:** Torch body  
with end number ,630 =  
without wear parts

- **MTB 330i W R torch bodies**

- 44,0350,3683,630 MTB 330i W R/22°/L246/H27
- 44,0350,3684,630 MTB 330i W R/36°/L236/H44
- 44,0350,3685,630 MTB 330i W R/45°/L228/H56
- 44,0350,3686,630 MTB 330i W R/60°/L212/H71

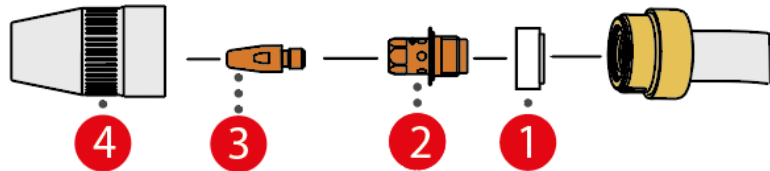
- **MTB 330i W R torch bodies – long variants**

- 44,0350,4228,630 MTB 330i W R OVT/22°/L331/H27
- 44,0350,4229,630 MTB 330i W R/36°/L236/H44
- 44,0350,4230,630 MTB 330i W R OVT/45°/L313/H56
- 44,0350,4231,630 MTB 330i W R OVT/60°/L297/H71



# Steel / CrNi applications

## Wear parts



- 1) 42,0100,1408,5 Insulation sleeve
- 2) 42,0001,4480,5 Nozzle stock M6
- 3) Contact tip for steel and CrNi M6
- 4a) **Gasdüse ø13, L=39,5**
  - 42,0001,0547,5 Gas nozzle ø13
  - 44,0450,0122 Gas nozzle milling tool
- 4b) **Gas nozzle ø15 L=38 (only for steel):**
  - 42,0001,0513,5 Gas nozzle ø15
  - Gas nozzle milling tool on request

## Cleaning

### Robacta Reamer

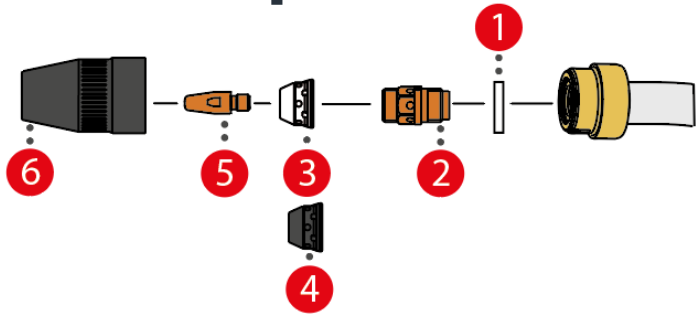
Mechanical cleaning with milling tool



Further information see presentation torch cleaning and changing systems. [Link](#)

# Aluminium / CuSi applications

## Wear parts



- 1) 42,0100,1407,5 Insulation ring
- 2) 42,0001,4479,5 Nozzle stock
- 3) 42,0100,0576,5 Spatter guard ceramic\*
- 4) 42,0100,0583 Spatter guard
- 4) Contact tip M6 for Aluminum
- 5) 42,0001,4534,5 Gas nozzle ø13 coated

\*recommended

## Cleaning

### Robacta Reamer brush head

Mechanical cleaning with special brush head

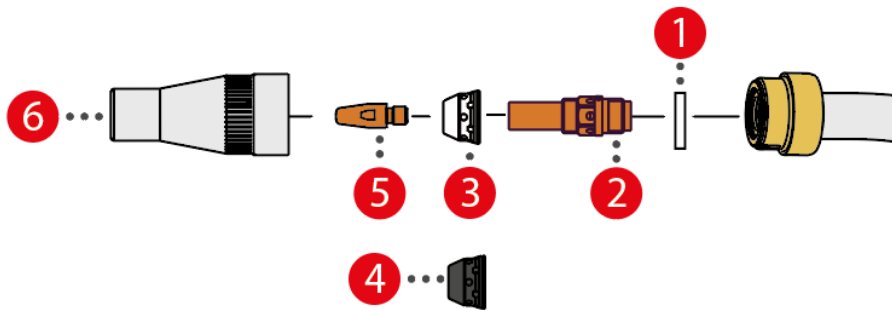


Further information see presentation torch cleaning and changing systems. [Link](#)

# Narrow gap

## Narrow gap

Use only for accessibility reasons



- 1) 42,0100,1407,5 Insulation ring
- 2) 42,0001,4742,5 Nozzle stock
- 3) 42,0100,0576,5 spatter guard ceramic\*
- 4) 42,0100,0583 spatter guard
- 5) Contact tip M6
- 5) 42,0001,4745,5 Gas nozzle narrow gap
- 44,0450,1158 Milling tool

## Cleaning

Attention: limited automated cleaning

Steel:  
Robacta Reamer



Aluminum:  
Robacta Reamer  
brush head



Further information see presentation torch cleaning and changing systems. [Link](#)



# Contec

## Contec

**Attention! TCP change and larger interference contour**

- 1) 42,0100,1408 Insulation sleeve
- 2) 44,0350,0162 Nozzle stock Contec MD
- 3) 42,0001,6336 Clamping nut
- 4) 42,0001,3912,10 / 42,0001,3912,100 Contec shells
- 5) 42,0001,0130 Gas nozzle  $\varnothing 13$  /  $\varnothing 25 \times 51$  CT/H  
44,0450,1158 Gas nozzle milling tool

## Cleaning

**Attention: limited automated cleaning**

**Steel:**

**Robacta Reamer**



**Aluminum:**

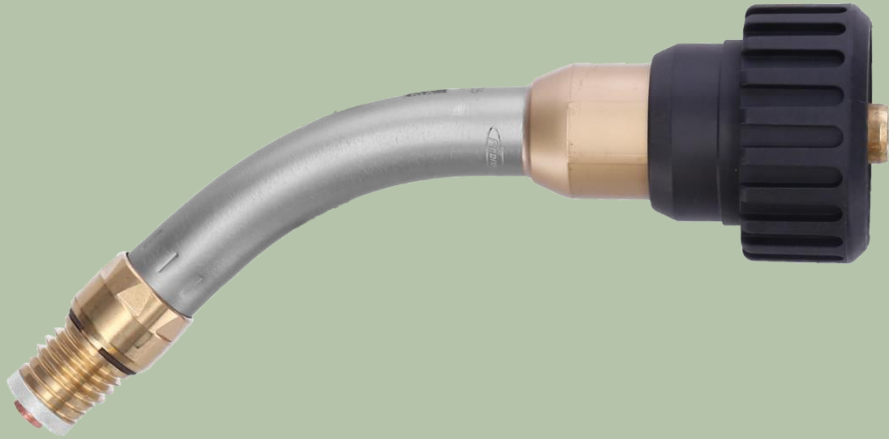
**Robacta Reamer  
brush head**



Further information see presentation torch cleaning and changing systems. [Link](#)

# MTB 350i W R

**Application: Component accessibility requires a slim gas nozzle with ø20mm**



- **Compatible with**
- Robacta TX/i (automated torch body change)

# MTB 350i W R

**Important:** Torch body  
with end number ,630 =  
without wear parts

## – MTB 350i W R torch bodies

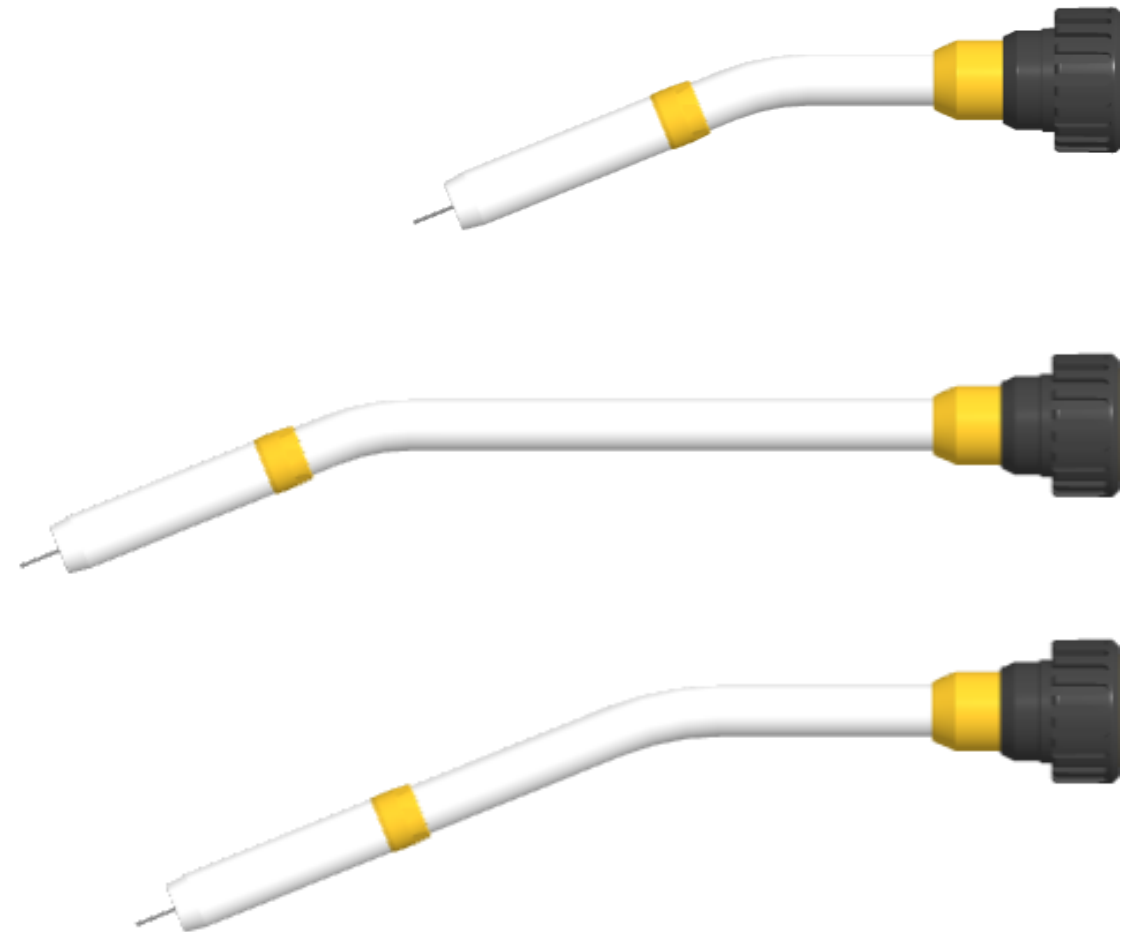
- 44,0350,5430,630 MTB 350i W R OVT /22°/L241/H50
- 44,0350,5431,630 MTB 350i W R OVT /36°/L224/H86
- 44,0350,5432,630 MTB 350i W R OVT/45°/L209/H107

## – MTB 350i W R torch bodies – long variants

- 44,0350,5433,630 MTB 350i W R OVT /22°/L383/H50
- 44,0350,5434,630 MTB 350i W R OVT /36°/L366/H86
- 44,0350,5435,630 MTB 350i W R OVT/45°/L351/H107

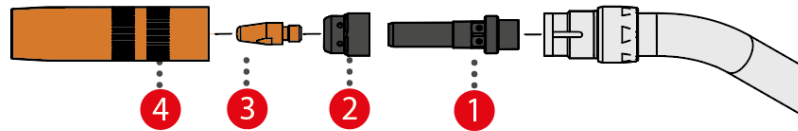
## – MTB 350i W R torch bodies Asian Style

- 44,0350,5436,630 MTB 350i W R OVT /22°/L340/H75
- 44,0350,5437,630 MTB 350i W R OVT/36°/L315/H125
- 44,0350,5438,630 MTB 350i W R OVT/45°/L294/H154



# Steel / CrNi applications

## Wear parts



- 2) 42,0001,6564,5 Nozzle stock M6
- 3) 42,0100,0882,5 Spatter guard
- 4) Contact tip for steel and CrNi M6
- 3) **Gas nozzle ø16**
  - 42,0001,0226,5 Gas nozzle cylindrical
  - 44,0450,1992 Gas nozzle milling tool
- **Gas nozzle ø13**
  - 42,0001,0225,5 Gas nozzle ø13
  - 44,0450,1993 Gas nozzle milling tool

## Cleaning

### Robacta Reamer

Mechanical cleaning with milling tool



### Robacta TC 2000

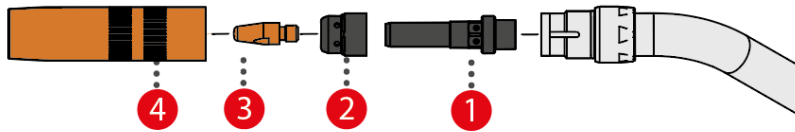
Magnetical cleaning



Further information see presentation torch cleaning and changing systems. [Link](#)

# Aluminium / CuSi applications

## Wear parts



- 1) 42,0001,6564,5 Nozzle stock M6
- 2) 42,0100,0882,5 Spatter guard
- 4) Contact tip for Aluminium M6
- 5) 42,0001,0340,5 gas nozzle ø15  
42,0001,0519,5 gas nozzle ø13

## Cleaning

### Robacta Reamer brush head

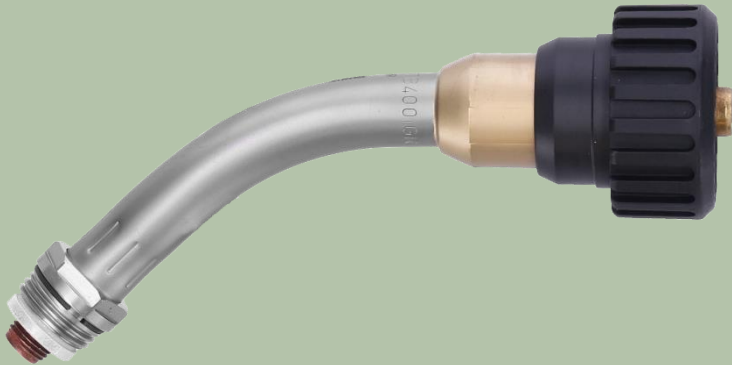
Mechanical cleaning with special brush head



Further information see presentation torch cleaning and changing systems. [Link](#)

# MTB 400i G R

Recommended torch body for gascooled applications, with torch Identification



- **Compatible with**
- Robacta CTC (automated contact tip change)
- Robacta TX/i (automated torch body change)
- Exento Robotics (fume extraction set)

# MTB 400i G R

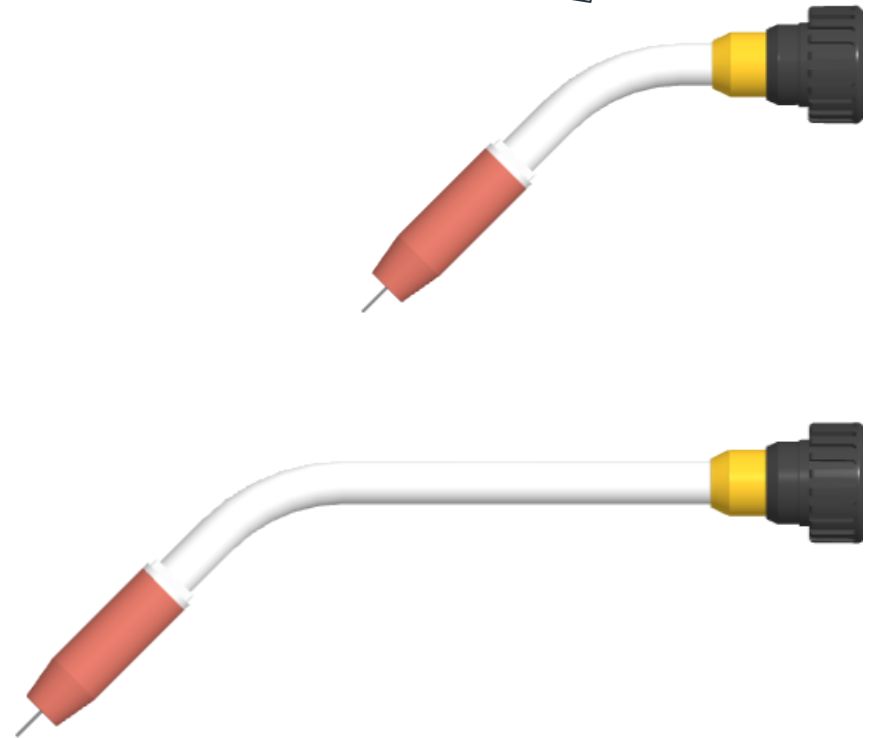
- **MTB 400i G R torch bodies**

- 44,0350,3465,630 MTB 400i G R OVT/22°/L241/H50
- 44,0350,3466,630 MTB 400i G R OVT/36°/L224/H86
- 44,0350,3467,630 MTB 400i G R OVT/45°/L209/H107

- **MTB 400i G R torch bodies – long variants**

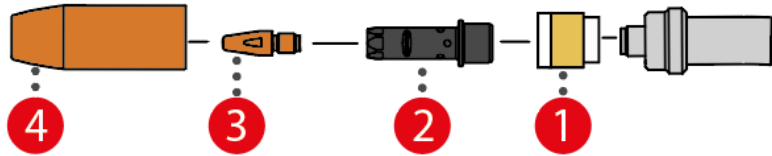
- 44,0350,4296,630 MTB 400i G R OVT/22°/L383/H50
- 44,0350,4297,630 MTB 400i G R OVT/36°/L366/H86
- 44,0350,4298,630 MTB 400i G R OVT/45°/L351/H107
- 44,0350,4024,630 MTB 400i G R OVT/45°/L332,5/H90
- 44,0350,4114,630 MTB 400i G R OVT/45°/L321/H120
- 44,0350,4261,630 MTB 400i G R S-Typ OVT/36°/L338

**Important:** Torch body  
with end number ,630 =  
without wear parts



# Steel / CrNi applications

## Wear parts



- 1) 44,0350,3880,5 Insulation sleeve
- 2) 42,0001,4623,5 Nozzle stock
- 3) Contact tip for steel and CrNi M8x1,5
- 4a) **Gas nozzle ø15**
  - 42,0001,4052,5 Gasdüse ø15 \*
  - 44,0450,0118 Gas nozzle milling tool
- 4b) **Gas nozzle ø17:**
  - 42,0001,4049,5 Gas nozzle ø17
  - 42,0001,1275,5 Gasdüse ø17 HD
  - 44,0450,0119 Gas nozzle milling tool

## Cleaning

### Robacta Reamer V70 44,0450,1961

Mechanical cleaning with milling tool



### Robacta TC 2000

Magnetical cleaning

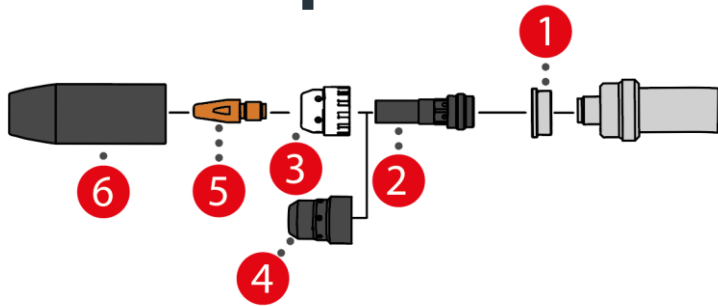


Further information see presentation torch cleaning and changing systems. [Link](#)



# Aluminium / CuSi applications

## Wear parts



- 1) 42,0100,1429,5 Insulation ring
- 2) 42,0001,3975,5 Nozzle stock M8x1,5 \*  
42,0001,4800,5 Nozzle stock M6
- 3) 42,0100,0532,5 Spatter guard ceramic\*
- 4) 42,0100,0575,5 Spatter guard
- 5) Contact tip M6 or M8x1,5 for Aluminum
- 6) 42,0001,4495,5 Gas nozzle ø15 / ø25x73 coated

## Cleaning

### Robacta Reamer brush head

Mechanical cleaning with special brush head

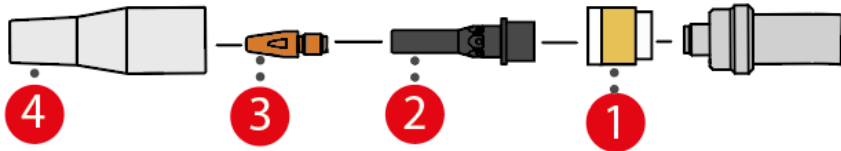


Further information see presentation torch cleaning and changing systems. [Link](#)

# Narrow gap

## Narrow gap

Use only for accessibility reasons



- 1) 44,0350,3880,5 Insulation sleeve
- 2) 42,0001,4921,5 Nozzle stock M6
- 3) Contact tip M6
- 4a) 42,0001,4918,5 Gas nozzle narrow gap
- 4b) **Short gas nozzles – only for steel**
  - 42,0001,6716,5 Gas nozzle narrow gap  $\varnothing 13$
  - 42,0001,6715,5 Gas nozzle narrow gap  $\varnothing 10$

**Milling tool for gas nozzle  $\varnothing 13$ :**

44,0450,1485 Milling tool

## Cleaning

Attention: limited automated cleaning

Steel:

Robacta Reamer / Robacta TC 2000

Aluminum:

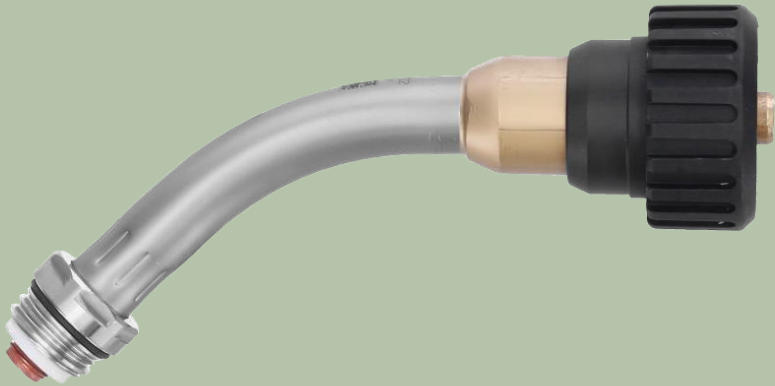
Robacta Reamer brush head



Further information see presentation torch cleaning and changing systems. [Link](#)

# MTB 500S G R

Recommended torch body for gascooled steel applications, high performance and long contact tip life times



## Compatible with

- Robacta CTC (automated contact tip change)
- Exento Robotics (fume extraction set)

# MTB 500S G R

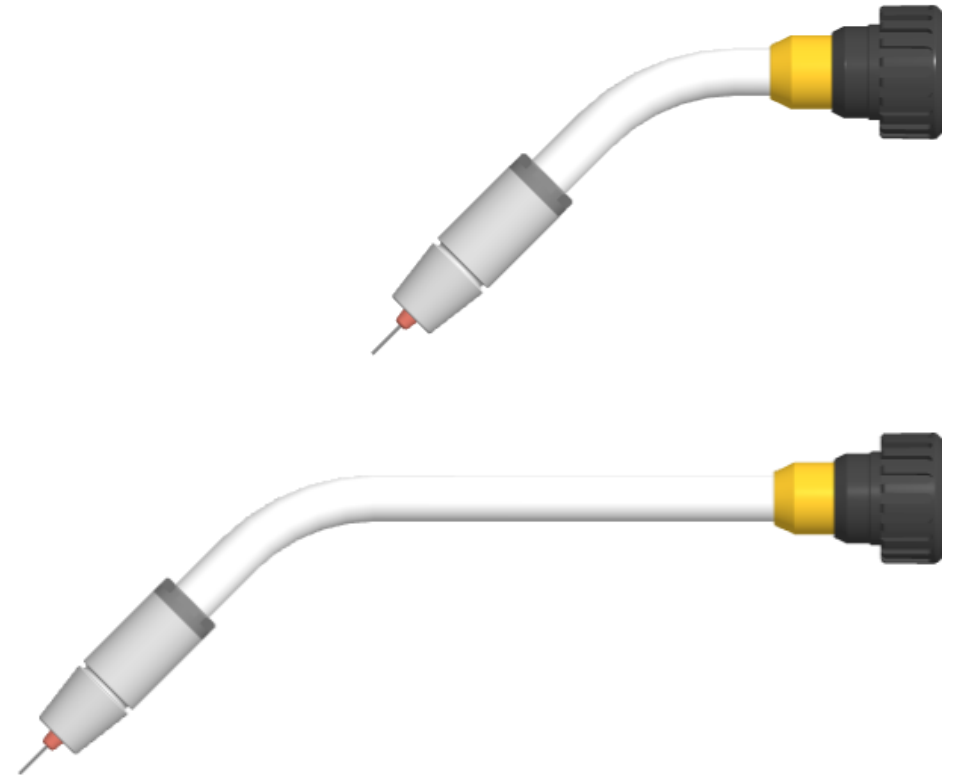
- **MTB 500S G R torch bodies**

- 44,0350,4464,630 MTB 500S G R OVT/22°/L241/H50
- 44,0350,4465,630 MTB 500S G R OVT/36°/L224/H86
- 44,0350,4466,630 MTB 500S G R OVT/45°/L209/H107

- **MTB 500S G R torch bodies – long variants**

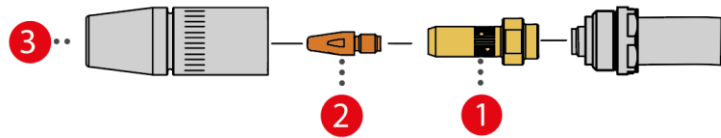
- 44,0350,4467,630 MTB 500S G R OVT/22°/L383/H50
- 44,0350,4468,630 MTB 500S G R OVT/36°/L366/H86
- 44,0350,4471,630 MTB 500S G R OVT/45°/L321/H120
- 44,0350,4469,630 MTB 500S G R OVT/45°/L351/H107
- 44,0350,4470,630 MTB 500S G R OVT/45°/L332/H90

**Important:** Torch body  
with end number ,630 =  
without wear parts



# Steel / CrNi applications

## Wear parts



- 1) 42,0001,0143,5 Nozzle stock M8x1,5 Ms \*
- 42,0001,0521,5 Nozzle stock M6 Ms
- 2) Contact tip for steel and CrNi M8x1,5
- 3a) 44,0350,0222,5 Gas nozzle ø15 \*
- 3b) 44,0350,0753,5 Gas nozzle ø17

\* recommended

## Cleaning

### Robacta Reamer

Mechanical cleaning with milling tool

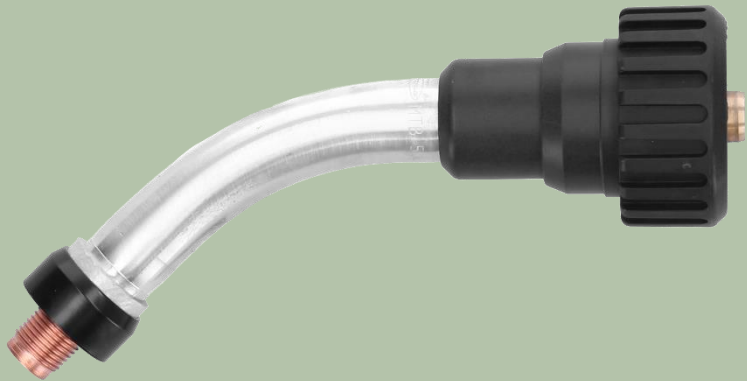


| Contact tip | Gas nozzle     | Milling tool        |
|-------------|----------------|---------------------|
| M6          | 44,0350,0222,5 | <b>44,0450,0010</b> |
| M8x1,5      | 44,0350,0222,5 | <b>44,0450,0011</b> |
| M6          | 44,0350,0753,5 | <b>44,0450,0027</b> |
| M8x1,5      | 44,0350,0753,5 | <b>44,0450,0028</b> |

Further information see presentation torch cleaning and changing systems. [Link](#)

# MTB 500S G R US

Torch body for gascooled steel applications with US-Style consumables, high performance and long contact tip life times



Compatible with

- Robacta CTC (automated contact tip change)

# MTB 500S G R US-Style

## – MTB 500S G R US-Style torch bodies

- 44,0350,5427,630 MTB 500S G R US/22°/L241/H50
- 44,0350,5428,630 MTB 500S G R US/36°/L224/H86
- 44,0350,5429,630 MTB 500S G R US/45°/L209/H107
- 44,0350,1401,630 MTB 500S G R US/0°/L250

## – MTB 500S G R US-Style torch bodies – long variants

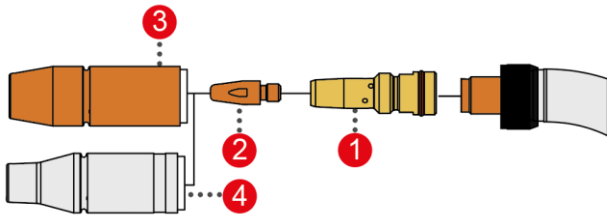
- 44,0350,5508,630 MTB 500S G R US/22°/L383/H50
- 44,0350,5509,630 MTB 500S G R US/36°/L366/H86
- 44,0350,5512,630 MTB 500S G R US/45°/L321/H120
- 44,0350,5510,630 MTB 500S G R US/45°/L351/H107
- 44,0350,5511,630 MTB 500S G R US/45°/L332,5/H90
- 44,0350,1403,630 MTB 500S G R US OVT/0°/L392

**Important:** Torch body  
with end number ,630 =  
without wear parts



# Steel / CrNi applications

## Wear parts



- 1) 42,0001,6639,5 Nozzle stock M8x1,5
- 2) Contact tip for steel and CrNi M8x1,5
- **3) Gas nozzle ø15**
  - 44,0350,0059,5 Gas nozzle ø15 \*
  - 44,0450,0005 Gas nozzle milling tool
- **4) Gas nozzle ø13 narrow gap**
  - 44,0350,0068,5 Gas nozzle ø13
  - 44,0450,1485 Gas nozzle milling tool

\* recommended

## Cleaning

### Robacta Reamer

Mechanical cleaning with milling tool



Further information see presentation torch cleaning and changing systems. [Link](#)



# MTB 330i G R

**Application: Component accessibility requires a short torch head**



- **Compatible with**
- Robacta CTC (automated contact tip change)
- Robacta TX/i (automated torch body change)
- Exento Robotics (fume extraction set)

# MTB 330i G R

- **MTB 330i G R torch bodies**

- 44,0350,4065,630 MTB 330i G R/22°/L246/H27
- 44,0350,4066,630 MTB 330i G R/36°/L236/H44
- 44,0350,4067,630 MTB 330i G R/45°/L228/H56
- 44,0350,4113,630 MTB 330i G R/45°/L332.5/H62

- **MTB 330i G R torch bodies – long variants**

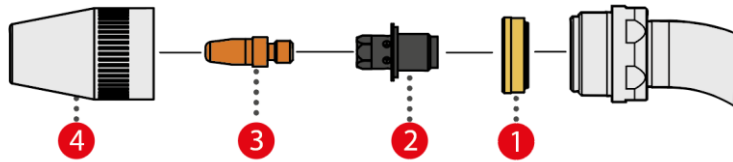
- 44,0350,4125,630 MTB 330i G R OVT/22°/L331/H27
- 44,0350,4126,630 MTB 330i G R OVT/36°/L321/H44
- 44,0350,4127,630 MTB 330i G R OVT/45°/L313/H56

**Important:** Torch body  
with end number ,630 =  
without wear parts



# Steel / CrNi applications

## Wear parts



- 1) 44,0350,4122,5 Insulation sleeve
- 2) 42,0001,4916,5 Nozzle stock M6
- 3) Contact tip for steel and CrNi M6
- 4a) **Gas nozzle  $\varnothing 13$ , L=39,5**
  - 42,0001,0547,5 Gas nozzle  $\varnothing 13$
  - 44,0450,0123 Gas nozzle milling tool
- 4b) **Gas nozzle  $\varnothing 15$  L=38 (only for steel):**
  - 42,0001,0513,5 Gas nozzle  $\varnothing 15$
  - 44,0450,0124 Gas nozzle milling tool

## Cleaning

### Robacta Reamer

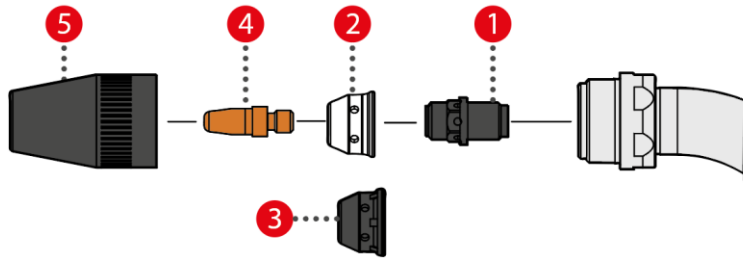
Mechanical cleaning with milling tool



Further information see presentation torch cleaning and changing systems. [Link](#)

# Aluminium / CuSi applications

## Wear parts



- 1) 42,0001,4870,5 Nozzle stock M6
- 2) 42,0100,0576,5 Spatter guard ceramic\*
- 4) 42,0100,0583,5 Spatter guard
- 4) Contact tip M6 for Aluminum
- 5) 42,0001,4534,5 Gas nozzle ø13 coated

\*recommended

## Cleaning

### Robacta Reamer brush head

Mechanical cleaning with special brush head

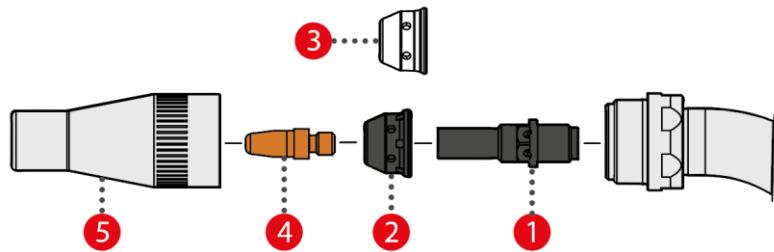


Further information see presentation torch cleaning and changing systems. [Link](#)

# Narrow gap

## Narrow gap

Use only for accessibility reasons



- 1) 42,0001,4909,5 Nozzle stock M6
- 2) 42,0100,0583,5 spatter guard
- 3) 42,0100,0576,5 spatter guard ceramic\*
- 4) Contact tip M6
- 5a) 42,0001,4745,5 Gas nozzle narrow gap  $\varnothing 13$  L56
- 5b) 42,0001,6772,5 Gas nozzle narrow gap  $\varnothing 13$  L50
- 5c) 44,0450,1158 Milling tool

## Cleaning

Attention: limited automated cleaning

Steel:  
Robacta Reamer



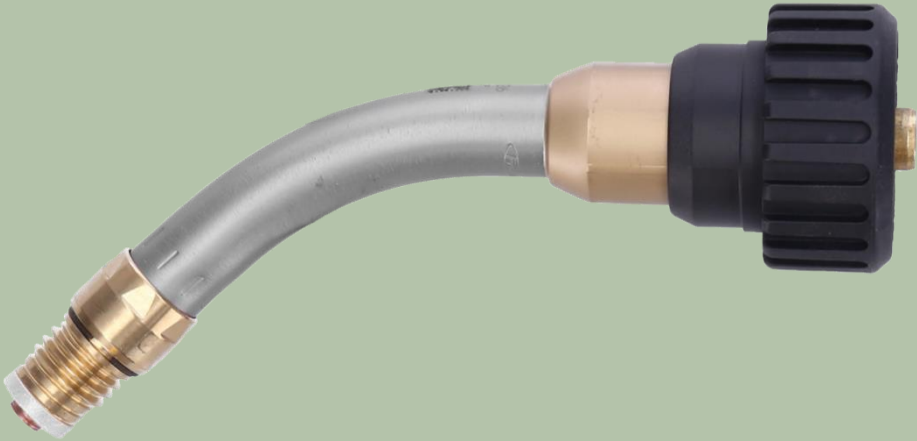
Aluminum:  
Robacta Reamer  
brush head



Further information see presentation torch cleaning and changing systems. [Link](#)

# MTB 350i G R

**Application: Component accessibility requires a slim gas nozzle with ø20mm**



- **Compatible with**
- Robacta TX/i (automated torch body change)

# MTB 350i G R

**Important:** Torch body  
with end number ,630 =  
without wear parts

- **MTB 350i G R torch bodies**

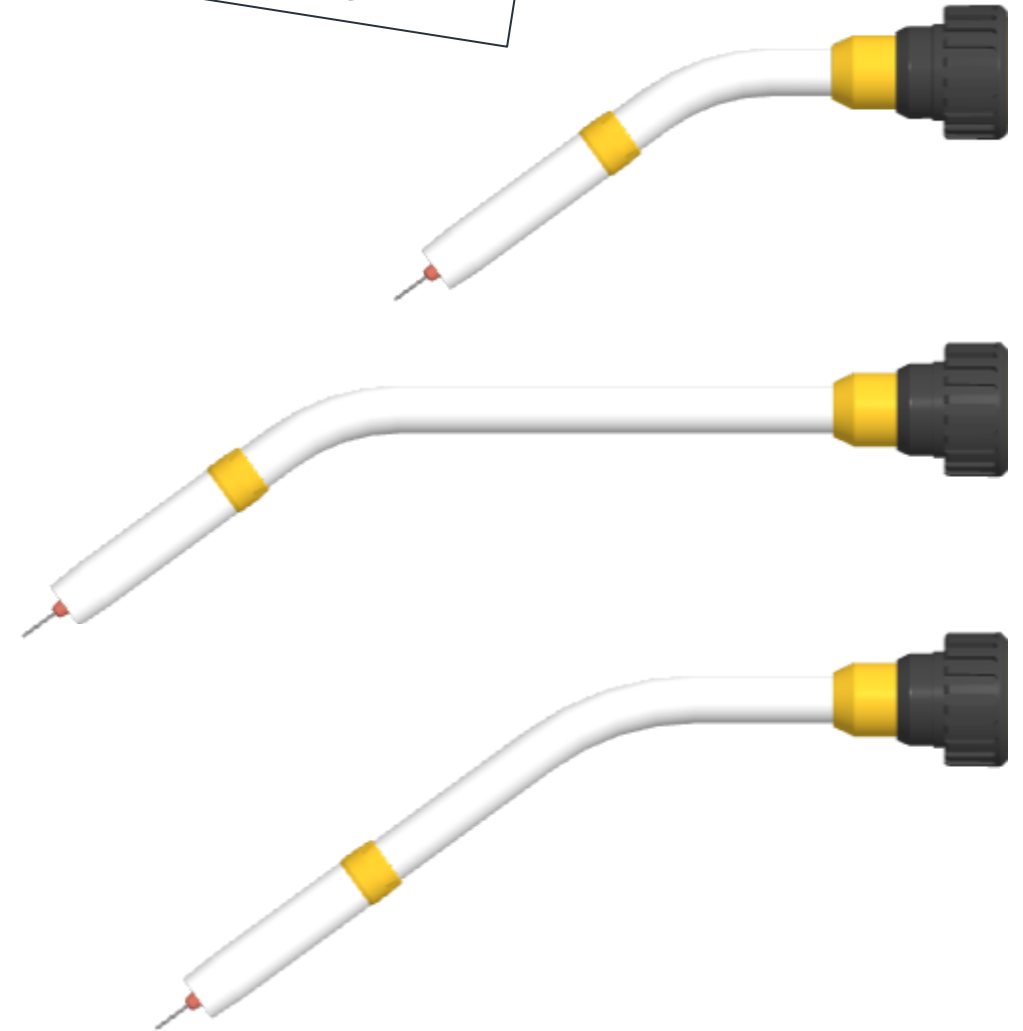
- 44,0350,4419,630 MTB 350i G R OVT /22°/L241/H50
- 44,0350,4420,630 MTB 350i G R OVT /36°/L224/H86
- 44,0350,4421,630 MTB 350i G R OVT/45°/L209/H107

- **MTB 350i G R torch bodies – long variants**

- 44,0350,4422,630 MTB 350i G R OVT /22°/L383/H50
- 44,0350,4423,630 MTB 350i G R OVT /36°/L366/H86
- 44,0350,4424,630 MTB 350i G R OVT/45°/L351/H107

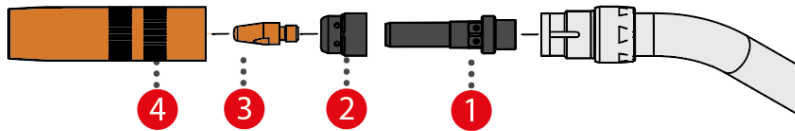
- **MTB 350i G R torch bodies Asian Style**

- 44,0350,4308,630 MTB 350i G R OVT /22°/L340/H75
- 44,0350,4309,630 MTB 350i G R OVT/36°/L315/H125
- 44,0350,4310,630 MTB 350i G R OVT /45°/L294/H154



# Steel / CrNi applications

## Wear parts



- 1) 42,0001,6564,5 Nozzle stock M6
- 2) 42,0100,0882,5 Spatter guard
- 3) Contact tip for steel and CrNi M6
- 4a) **Gas nozzle ø16**
  - 42,0001,0226,5 Gas nozzle cylindrical
  - 44,0450,1992 Gas nozzle milling tool
- 4b) **Gas nozzle ø13**
  - 42,0001,0225,5 Gas nozzle ø13
  - 44,0450,1993 Gas nozzle milling tool

## Cleaning

### Robacta Reamer

Mechanische Reinigung mit Fräser



### TC 2000

Magnetical cleaning

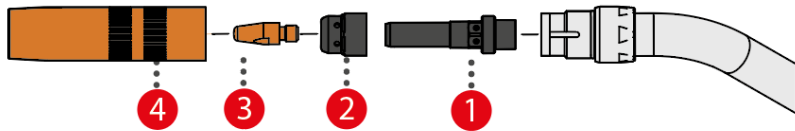


Further information see presentation torch cleaning and changing systems. [Link](#)



# Aluminium / CuSi applications

## Wear parts



- 1) 42,0001,6564,5 Nozzle stock M6
- 2) 42,0100,0882,5 Spatter guard
- 3) Contact tip for Aluminium M6
- 4a) 42,0001,0340,5 gas nozzle ø15
- 4b) 42,0001,0519,5 gas nozzle ø13

## Cleaning

### Robacta Reamer brush head

Mechanical cleaning with special brush head



Further information see presentation torch cleaning and changing systems. [Link](#)

# Contact Tip



# Small tip

- If the contact tip is worn out too fast, you can use a contact tip that is one size smaller.
  - Example: If the 1.2mm contact tip worn out too fast, you can use the 1.1mm contact tip or the WQ contact tip quality. See the table for the contact tubes.
- There are also steel and CrNi applications where a reduction of the contact tip bore occurs. This happens in a certain temperature range of the contact tip in combination with the quality of the filler material. In this case we recommend to use a contact tube one size larger.
  - Example: If at an 1.2mm contact tip you have a reduction of the contact tip bore, you can use a 1.3mm contact tip. See the table for the contact tubes.
- We recommend evaluating the lifetime of the contact tips on the customer's actual application.

Matreial:  
CuCrZr

# Contact tip M6 for steel and CrNi



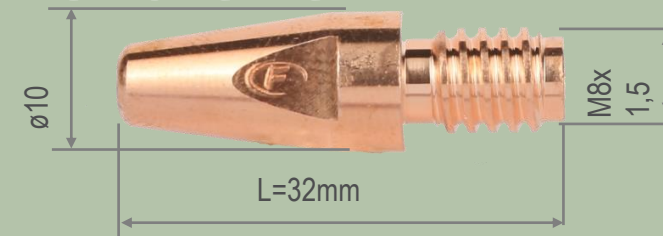
| Article number  | Description                   | Bore diameter | Suitable for wire diameter |
|-----------------|-------------------------------|---------------|----------------------------|
| 42,0001,4928,10 | Contact tip 0,6 / M6 / ø8x24  | 0,73mm        | 0,6mm                      |
| 42,0001,6524,10 | Contact tip 0,7 / M6 / ø8x24  | 0,88mm        | 0,7 / 0,8mm                |
| 42,0001,4461,10 | Contact tip 0,8 / M6 / ø8x24  | 0,93mm        | 0,8mm                      |
| 42,0001,4462,10 | Contact tip 0,9 / M6 / ø8x24  | 1,05mm        | 0,9 / 1,0mm                |
| 42,0001,0000,10 | Contact tip 1,0 - / M6/ ø8x24 | 1,10mm        | 1,0mm                      |
| 42,0001,4463,10 | Contact tip 1,0 / M6 / ø8x24  | 1,18mm        | 1,0 / 1,1mm                |
| 42,0001,6527,10 | Contact tip 1,1 / M6 / ø8x24  | 1,28mm        | 1,1 / 1,2mm                |
| 42,0001,4464,10 | Contact tip 1,2 / M6 / ø8x24  | 1,39mm        | 1,2 / 1,3mm                |
| 42,0001,6529,10 | Contact tip 1,3 / M6 / ø8x24  | 1,52mm        | 1,3 / 1,4mm                |
| 42,0001,4465,10 | Contact tip 1,4 / M6 / ø8x24  | 1,62mm        | 1,4 / 1,5mm                |
| 42,0001,6522,10 | Contact tip 1,5 / M6 / ø8x24  | 1,80mm        | 1,5 / 1,6mm                |
| 42,0001,4466,10 | Contact tip 1,6 / M6 / ø8x24  | 1,83mm        | 1,6mm                      |

# Contact tip M6 for Aluminum and CuSi



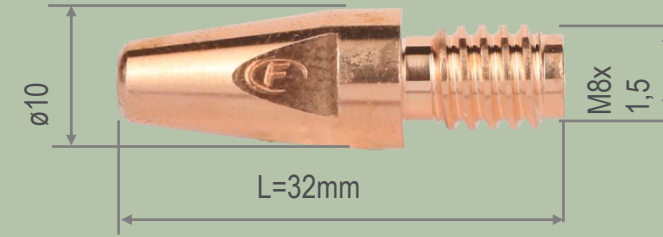
| Article number  | Description                                      | Bore diameter | Suitable for wire diameter   |
|-----------------|--------------------------------------------------|---------------|------------------------------|
| 42,0001,6525,10 | Contact tip 0,8 / M6 / $\varnothing 8 \times 24$ | 0,97mm        | 0,8mm / 0,9mm Stahl und CrNi |
| 42,0001,6526,10 | Contact tip 1,0 / M6 / $\varnothing 8 \times 24$ | 1,20mm        | 1,0mm / 1,1mm Stahl und CrNi |
| 42,0001,6528,10 | Contact tip 1,2 / M6 / $\varnothing 8 \times 24$ | 1,43mm        | 1,2mm / 1,3mm Stahl und CrNi |
| 42,0001,6523,10 | Contact tip 1,6 / M6 / $\varnothing 8 \times 24$ | 1,90mm        | 1,6mm / 1,8mm Stahl und CrNi |

# Contact tip M8x1,5 for steel and CrNi



| Article number  | Description                                            | Bore diameter | Suitable for wire diameter |
|-----------------|--------------------------------------------------------|---------------|----------------------------|
| 42,0001,0136,10 | Contact tip 0,6 / M8x1,5 / $\varnothing 10 \times 32$  | 0,73mm        | 0,6mm                      |
| 42,0001,6482,10 | Contact tip 0,7 / M8x1,5 / $\varnothing 10 \times 32$  | 0,88mm        | 0,7 / 0,8mm                |
| 42,0001,6464,10 | Contact tip 0,8 / M8x1,5 / $\varnothing 10 \times 32$  | 0,93mm        | 0,8mm                      |
| 42,0001,6465,10 | Contact tip 0,9 / M8x1,5 / $\varnothing 10 \times 32$  | 1,05mm        | 0,9 / 1,0mm                |
| 42,0001,0128,10 | Contact tip 1,0- / M8x1,5 / $\varnothing 10 \times 32$ | 1,10mm        | 1,0mm                      |
| 42,0001,6466,10 | Contact tip 1,0 / M8x1,5 / $\varnothing 10 \times 32$  | 1,16mm        | 1,0 / 1,1mm                |
| 42,0001,6483,10 | Contact tip 1,1 / M8x1,5 / $\varnothing 10 \times 32$  | 1,28mm        | 1,1 / 1,2mm                |
| 42,0001,6467,10 | Contact tip 1,2 / M8x1,5 / $\varnothing 10 \times 32$  | 1,39mm        | 1,2 / 1,3mm                |
| 42,0001,6484,10 | Contact tip 1,3 / M8x1,5 / $\varnothing 10 \times 32$  | 1,52mm        | 1,3 / 1,4mm                |
| 42,0001,6468,10 | Contact tip 1,4 / M8x1,5 / $\varnothing 10 \times 32$  | 1,62mm        | 1,4 / 1,5mm                |
| 42,0001,6485,10 | Contact tip 1,5 / M8x1,5 / $\varnothing 10 \times 32$  | 1,80mm        | 1,5 / 1,6mm                |
| 42,0001,6469,10 | Contact tip 1,6 / M8x1,5 / $\varnothing 10 \times 32$  | 1,83mm        | 1,6mm                      |
| 42,0001,6470,10 | Contact tip 1,8 / M8x1,5 / $\varnothing 10 \times 32$  | 2,05mm        | 1,8mm                      |
| 42,0001,6471,10 | Contact tip 2,0 / M8x1,5 / $\varnothing 10 \times 32$  | 2,30mm        | 2,0mm                      |
| 42,0001,6472,10 | Contact tip 2,4 / M8x1,5 / $\varnothing 10 \times 32$  | 2,70mm        | 2,4mm                      |
| 42,0001,4642,10 | Contact tip 2,8 / M8x1,5 / $\varnothing 10 \times 32$  | 3,30mm        | 2,8mm                      |

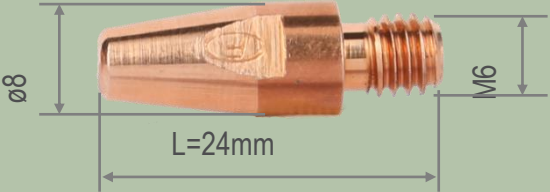
# Contact tip M8x1,5 for Aluminum and CuSi



| Article number  | Description                          | Bore diameter | Suitable for wire diameter   |
|-----------------|--------------------------------------|---------------|------------------------------|
| 42,0001,6537,10 | Contact tip 0,8 / M8x1,5 / ø10x32 Al | 0,97mm        | 0,8mm / 0,9mm Stahl und CrNi |
| 42,0001,4750,10 | Contact tip 1,0 / M8x1,5 / ø10x32 Al | 1,20mm        | 1,0mm / 1,1mm Stahl und CrNi |
| 42,0001,4751,10 | Contact tip 1,2 / M8x1,5 / ø10x32 Al | 1,43mm        | 1,2mm / 1,3mm Stahl und CrNi |
| 42,0001,4752,10 | Contact tip 1,6 / M8x1,5 / ø10x32 Al | 1,90mm        | 1,6mm / 1,8mm Stahl und CrNi |

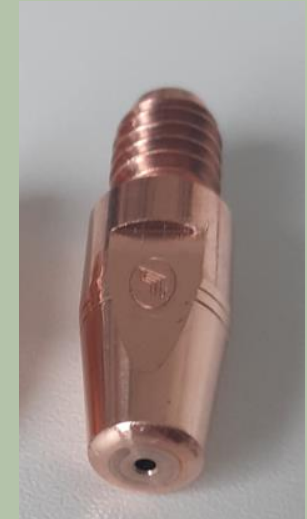
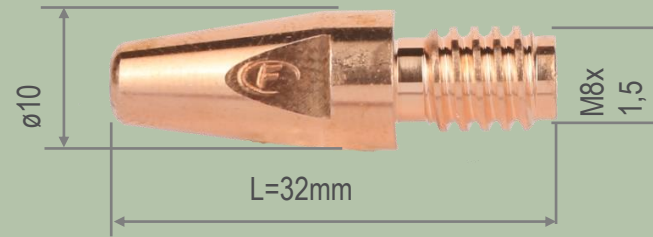


# Contact tip WQ Quality M6 for Steel and CrNi if worn out too fast



| Article number  | Description                       | Bore diameter | Suitable for wire diameter   |
|-----------------|-----------------------------------|---------------|------------------------------|
| 42,0001,7046,10 | Contact tip 0,9 / M6 / ø8x24 / WQ | 1,05mm        | 0,9mm / 1,0mm Steel and CrNi |
| 42,0001,7047,10 | Contact tip 1,0 / M6 / ø8x24 / WQ | 1,10mm        | 1,0mm Steel and CrNi         |
| 42,0001,7048,10 | Contact tip 1,2 / M6 / ø8x24 / WQ | 1,28mm        | 1,1mm / 1,2mm Steel and CrNi |
| 42,0001,7049,10 | Contact tip 1,6 / M6 / ø8x24 / WQ | 1,80mm        | 1,5mm / 1,6mm Steel and CrNi |

# Contact tip WQ Quality M8x1,5 for Steel und CrNi if worn out too fast



| Article number  | Description                                                | Bore diamter | Suitable for wire diameter   |
|-----------------|------------------------------------------------------------|--------------|------------------------------|
| 42,0001,7050,10 | Contact tip 0,9 / M8x,1,5 / $\varnothing 10 \times 32$ /WQ | 1,05mm       | 0,9mm / 1,0mm Steel and CrNi |
| 42,0001,7051,10 | Contact tip 1,0 / M8x,1,5 / $\varnothing 10 \times 32$ /WQ | 1,10mm       | 1,0mm Steel and CrNi         |
| 42,0001,7052,10 | Contact tip 1,2 / M8x,1,5 / $\varnothing 10 \times 32$ /WQ | 1,28mm       | 1,1mm / 1,2mm Steel and CrNi |
| 42,0001,3132,10 | Contact tip 1,4 / M8x1,5 / $\varnothing 10 \times 32$ /WQ  | 1,52mm       | 1,3mm / 1,4mm Steel and CrNi |
| 42,0001,7053,10 | Contact tip 1,6 / M8x,15 / $\varnothing 10 \times 32$ /WQ  | 1,80mm       | 1,5mm / 1,6mm Steel and CrNi |

# Tests at customers

- Metalsa Mexico: **8-15x** longer life time than CuCrZr
- Gestamp Germany: **5,5x** longer life time than CuCrZr
- Werle Werke (Plattieren NiBas) Germany: **10x** longer life time than CuCrZr
- Customer from Heiligenstadt (Christian Krauß → manual welding CrNi) Germany: **10x** longer life time than CuCrZr

***Only for  
internal use***

# Inner liner



# Steel inner liner for gas- and watercooled | coil length 5m, 15m, 50m

- 40,0002,0040,005 Bare steel inner liner **0,8 / 5m** Iø1,4x1,5mm
- 40,0002,0040,015 Bare steel inner liner **0,8 / 15m** Iø1,4x1,5mm
- 40,0002,0040,050 Bare steel inner liner **0,8 / 50m** Iø1,4x1,5mm
- 40,0002,0041,005 Bare steel inner liner **1,0 / 5m** Iø1,6x1,6mm
- 40,0002,0041,015 Bare steel inner liner **1,0 / 15m** Iø1,6x1,6mm
- 40,0002,0041,050 Bare steel inner liner **1,0 / 50m** Iø1,6x1,6mm
- 40,0002,0042,005 Bare steel inner liner **1,2 / 5m** Iø1,9x1,5mm
- 40,0002,0042,015 Bare steel inner liner **1,2 / 15m** Iø1,9x1,5mm
- 40,0002,0042,050 Bare steel inner liner **1,2 / 50m** Iø1,9x1,5mm
- 40,0002,0043,005 Bare steel inner liner **1,6 / 5m** Iø2,5x1,2mm
- 40,0002,0043,015 Bare steel inner liner **1,6 / 15m** Iø2,5x1,2mm
- 40,0002,0043,050 Bare steel inner liner **1,6 / 50m** Iø2,5x1,2mm



# CrNi inner liner for gas- and watercooled / coil length 5m, 15m, 50m

- 40,0002,0044,005 CrNi-bare inner liner **0,8 / 5m** Iø1,4x1,5mm
- 40,0002,0044,015 CrNi-bare inner liner **0,8 / 15m** Iø1,4x1,5mm
- 40,0002,0044,050 CrNi-bare inner liner **0,8 / 50m** Iø1,4x1,5mm
- 40,0002,0045,005 CrNi-bare inner liner **1,0 / 5m** Iø1,6x1,6mm
- 40,0002,0045,015 CrNi-bare inner liner **1,0 / 15m** Iø1,6x1,6mm
- 40,0002,0045,050 CrNi-bare inner liner **1,0 / 50m** Iø1,6x1,6mm
- 40,0002,0046,005 CrNi-bare inner liner **1,2 / 5m** Iø1,9x1,5mm
- 40,0002,0046,015 CrNi-bare inner liner **1,2 / 15m** Iø1,9x1,5mm
- 40,0002,0046,050 CrNi-bare inner liner **1,2 / 50m** Iø1,9x1,5mm
- 40,0002,0047,005 CrNi-bare inner liner **1,6 / 5m** Iø2,5x1,2mm
- 40,0002,0047,015 CrNi-bare inner liner **1,6 / 15m** Iø2,5x1,2mm
- 40,0002,0047,050 CrNi-bare inner liner **1,6 / 50m** Iø2,5x1,2mm



# Combi inner liner for aluminum watercooled

- 44,0350,3392 Combi inner liner W Al / **0,8 / 3,8m** ID1,2 / AD4,7
- 44,0350,3396 Combi inner liner W Al / **0,8 / 4,8m** ID1,2 / AD4,7
- 44,0350,3393 Combi inner liner W Al / **1,0 / 3,8m** ID1,5 / AD4,7
- 44,0350,3397 Combi inner liner W Al / **1,0 / 4,8m** ID1,5 / AD4,7
- 44,0350,3394 Combi inner liner W Al / **1,2 / 3,8m** ID1,8 / AD4,7
- 44,0350,3398 Combi inner liner W Al / **1,2 / 4,8m** ID1,8 / AD4,7
- 44,0350,3395 Combi inner liner W Al / **1,6 / 3,8m** ID2,4 / AD4,7
- 44,0350,3399 Combi inner liner W Al / **1,6 / 4,8m** ID2,4 / AD4,7
- 44,0350,3616 Combi inner liner W Al / **2,0 / 3,8m** ID3,0 / AD4,7
- 44,0350,3617 Combi inner liner W Al / **2,0 / 4,8m** ID3,0 / AD4,7



# Combi inner liner for aluminum watercooled

- 44,0350,3388 Combi inner liner W Al / **0,8 / 2,0m** ID1,2/AD4,7
- 44,0350,3389 Combi inner liner W Al / **1,0 / 2,0m** ID1,5/AD4,7
- 44,0350,3390 Combi inner liner W Al / **1,2 / 2,0m** ID1,8/AD4,7
- 44,0350,3391 Combi inner liner W Al / **1,6 / 2,0m** ID2,4/AD4,7
- 44,0350,3615 Combi inner liner W Al / **2,0 / 2,0m** ID3,0/AD4,7





# Combi inner liner with bronze piece L=40mm for aluminum gas cooled and CuSi gas- and water cooled

- 44,0350,3404 Combi inner liner G Al / **0,8 / 3,8m** CuSi G / W / ID1,2 / AD4,7
- 44,0350,3408 Combi inner liner G Al / **0,8 / 4,8m** CuSi G / W / ID1,2 / AD4,7
- 44,0350,3405 Combi inner liner G Al / **1,0 / 3,8m** CuSi G / W / ID1,5 / AD4,7
- 44,0350,3409 Combi inner liner G Al / **1,0 / 4,8m** CuSi G / W / ID1,5 / AD4,7
- 44,0350,3406 Combi inner liner G Al / **1,2 / 3,8m** CuSi G / W / ID1,8 / AD4,7
- 44,0350,3410 Combi inner liner G Al / **1,2 / 4,8m** CuSi G / W / ID1,8 / AD4,7
- 44,0350,3407 Combi inner liner G Al / **1,6 / 3,8m** CuSi G / W / ID2,4 / AD4,7
- 44,0350,3411 Combi inner liner G Al / **1,6 / 4,8m** CuSi G / W / ID2,4 / AD4,7



# Combi inner liner with bronze piece L=40mm for aluminum gas cooled and CuSi gas- and water cooled

- 44,0350,3400 Combi inner liner G Al /**0,8/2,0m** CuSi G/W / ID1,2/AD4,7
- 44,0350,3401 Combi inner liner G Al /**1,0/2,0m** CuSi G/W / ID1,5/AD4,7
- 44,0350,3402 Combi inner liner G Al /**1,2/2,0m** CuSi G/W / ID1,8/AD4,7
- 44,0350,3403 Combi inner liner G Al /**1,6/2,0m** CuSi G/W / ID2,4/AD4,7
- 44,0350,3618 Combi inner liner G Al /**2,0/2,0m** CuSi G/W / ID3,0/AD4,7



# Combi inner liner with bronze piece L=320mm for aluminum and CuSi gas cooled

- 44,0350,5513 Combi inner liner G /0,8/3,8m
- 44,0350,5518 Combi inner liner G /0,8/4,8m
- 44,0350,5514 Combi inner liner G /1,0/3,8m
- 44,0350,5519 Combi inner liner G /1,0/4,8m
- 44,0350,5515 Combi inner liner G /1,2/3,8m
- 44,0350,5520 Combi inner liner G /1,2/4,8m
- 44,0350,5516 Combi inner liner G /1,6/3,8m
- 44,0350,5521 Combi inner liner G /1,6/4,8m
- 44,0350,5517 Combi inner liner G /2,0/3,8m
- 44,0350,5522 Combi inner liner G /2,0/4,8m



# Steel inner liner coated, universally applicable

- 40,0002,0052,005 Steel inner liner C **0,8 / 5 m** Coated IØ1,4x1,53mm
- 40,0002,0052,015 Steel inner liner C **0,8 / 15 m** Coated IØ1,4x1,53mm
- 40,0002,0052,050 Steel inner liner C **0,8 / 50 m** Coated IØ1,4x1,53mm
- 40,0002,0053,005 Steel inner liner C **1,0 / 5 m** Coated IØ1,6x1,53mm
- 40,0002,0053,015 Steel inner liner C **1,0 / 15 m** Coated IØ1,6x1,53mm
- 40,0002,0053,050 Steel inner liner C **1,0 / 50 m** Coated IØ1,6x1,53mm
- 40,0002,0054,005 Steel inner liner C **1,2 / 5 m** Coated IØ1,9x1,53mm
- 40,0002,0054,015 Steel inner liner C **1,2 / 15 m** Coated IØ1,9x1,53mm
- 40,0002,0054,050 Steel inner liner C **1,2 / 50 m** Coated IØ1,9x1,53mm
- 40,0002,0055,005 Steel inner liner C **1,6 / 5 m** Coated IØ2,5x1,2mm
- 40,0002,0055,015 Steel inner liner C **1,6 / 15 m** Coated IØ2,5x1,2mm
- 40,0002,0055,050 Steel inner liner C **1,6 / 50 m** Coated IØ2,5x1,2mm



# Graphit alone inner liner for aluminium

- 40,0001,0529,010 Graphit inner liner **0,8 / 10m** (4,7/1,2)
- 40,0001,0529,030 Graphit inner liner **0,8 / 30m** (4,7/1,2)
- 40,0001,0529,100 Graphit inner liner **0,8 / 100m** (4,7/1,2)
- 40,0001,0530,010 Graphit inner liner **1,0 / 10m** (4,7/1,5)
- 40,0001,0530,030 Graphit inner liner **1,0 / 30m** (4,7/1,5)
- 40,0001,0530,100 Graphit inner liner **1,0 / 100m** (4,7/1,5)
- 40,0001,0531,010 Graphit inner liner **1,2 / 10m** (4,7/1,8)
- 40,0001,0531,030 Graphit inner liner **1,2 / 30m** (4,7/1,8)
- 40,0001,0531,100 Graphit inner liner **1,2 / 100m** (4,7/1,8)
- 40,0001,0532,010 Graphit inner liner **1,6 / 10m** (4,7/2,4)
- 40,0001,0532,030 Graphit inner liner **1,6 / 30m** (4,7/2,4)
- 40,0001,0532,100 Graphit inner liner **1,6 / 100m** (4,7/2,4)
- 40,0001,0533,010 Graphit inner liner **2,0 / 10m** (4,7/3,0)
- 40,0001,0533,030 Graphit inner liner **2,0 / 30m** (4,7/3,0)
- 40,0001,0533,100 Graphit inner liner **2,0 / 100m** (4,7/3,0)



# Clamping piece – color coded



Gray  
ø0,8mm  
44,0350,3315,5 Fe / CrNi  
44,0350,3314,5 Al / CuSi



Blue  
ø0,9/ø1,0mm  
44,0350,3317,5



Red  
ø1,2mm  
44,0350,3318,5



Black  
Ø1,4/1,6mm  
44,0350,3320,5



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