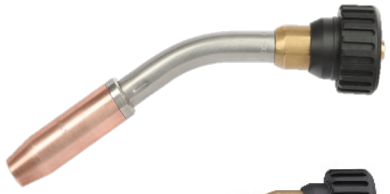
TPS/i Robotic Welding Torches

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

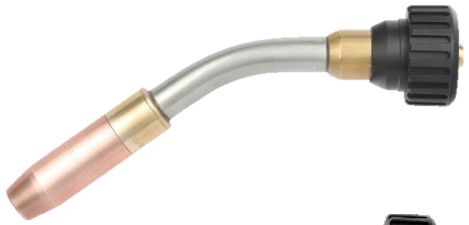
Accessibility

MTB 330i G R

MTB 350i G R

Standard for watercooled

MTB 500i W R



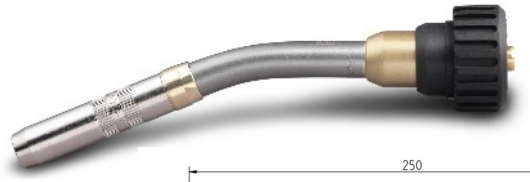
High performance

MTB 700i W R

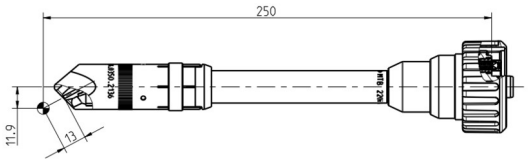
Accessibility

MTB 330i W R

MTB 350i W R

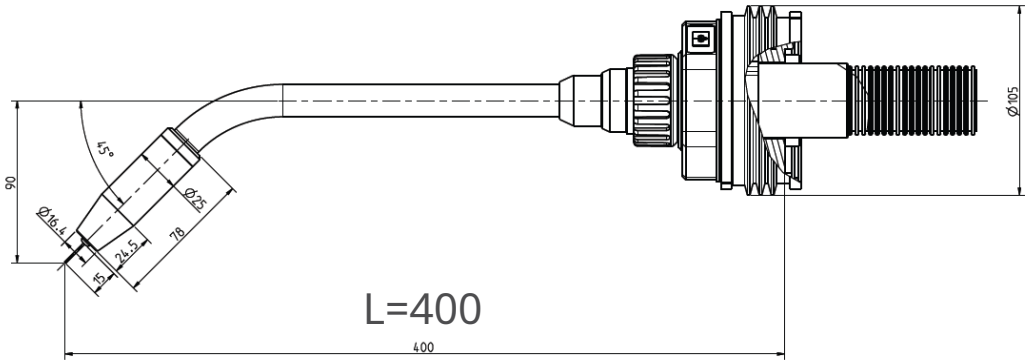


MTB 220i W R narrow gap

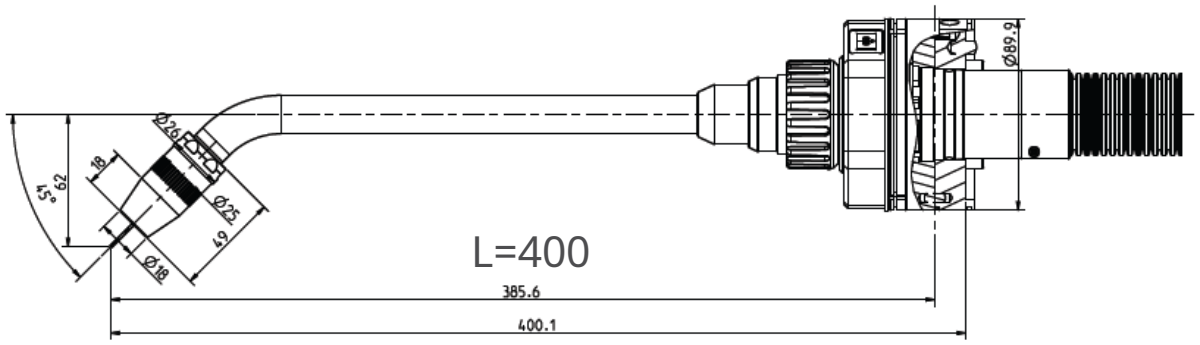


Special torch body geometries gascooled

- 44,0350,4024 MTB 400i G R /45°/L332,5/H90
- 44,0350,4114 MTB 400i G R /45°/L321/H120
- 44,0350,4113 MTB 330i G R /45°/L332,5/H62



Sample configuration with 44,0350,4024



Sample configuration with 44,0350,4113

- Please consider, that a special testing device is needed for these torch bodies
- 44,0360,0013 Testing device /I G/W/ S

Technical data

- **Gascooled torch bodies (MTB G R = MIG/MAG Torch Body Gascooled Robot):**
  - MTB 400i G R
    - CO_2: 400A 60% DC / 320A 100% DC
    - Mixed gas : 320A 60% DC / 260A 100% DC
  - MTB 500 S G R / MTB 500 S G R US
    - CO_2: 500A 40% DC / 360A 100% DC
    - Mixed gas : 500A 40% DC / 360A 100% DC
  - MTB 330i G R
    - CO2: 330A 60% DC / 270A 100% DC
    - Mixed gas : 270A 60% DC / 220A 100% DC
  - MTB 350i G R
    - CO_2: 350A 60% DC / 300A 100% DC
    - Mixed gas : 300A 60% DC / 250A 100% DC

- **Gascooled hose packs (MHP G R = MIG/MAG Hosepack Gascooled Robot)**
- MHP 400i G R / MHP 400i G RD
  - CO_2: 400A 60% DC / 320A 100% DC
  - Mixed gas : 320A 60% DC / 260A 100% DC

Technical data

- **Watercooled torch bodies (MTB W R = MIG/MAG Torch Body Watercooled Robot) :**
  - MTB 500i W R - 500A 100% DC CO_2 and mixed gas
  - MTB 700i W R - 700A 100% DC CO_2 and mixed gas

  - MTB 220i W R narrow gap 220A 100% ED CO_2 and mixed gas
  - MTB 330i W R - 330A 100% DC CO_2 and mixed gas
  - MTB 350i W R - 350A 100% ED CO_2 and mixed gas

- **Watercoold hose packs (MHP W R= MIG/MAG Hose Pack Watercooled Robot)**
  - MHP 700i W R - 700A 100% DC CO_2 and mixed gas
  - MHP 500i W RD - 500A 100% DC CO_2 and mixed gas

Optimally cooled welding torches

Cooling of water cooled welding torches

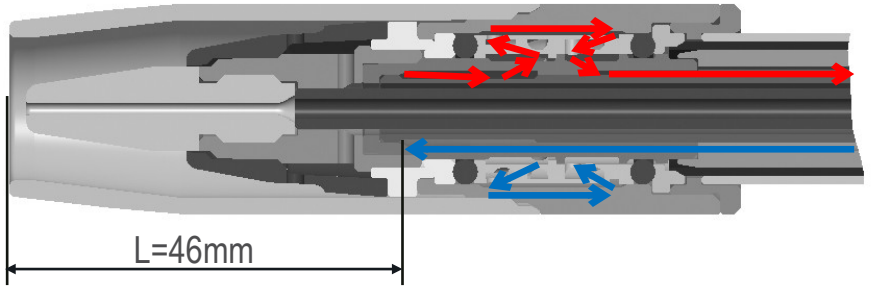
Highlight

MTB 500i W R

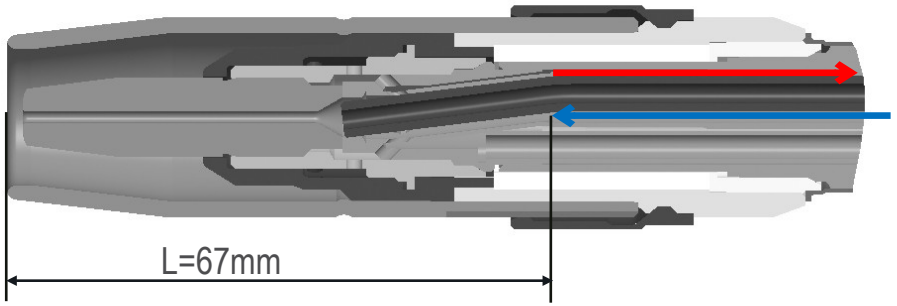
- Cooling was pulled forward as far as possible and also on the outside

- At 500A the gas nozzle can be replaced after about 1 min 30 sec by hand without gloves.

Example: **MTB 500i W R**



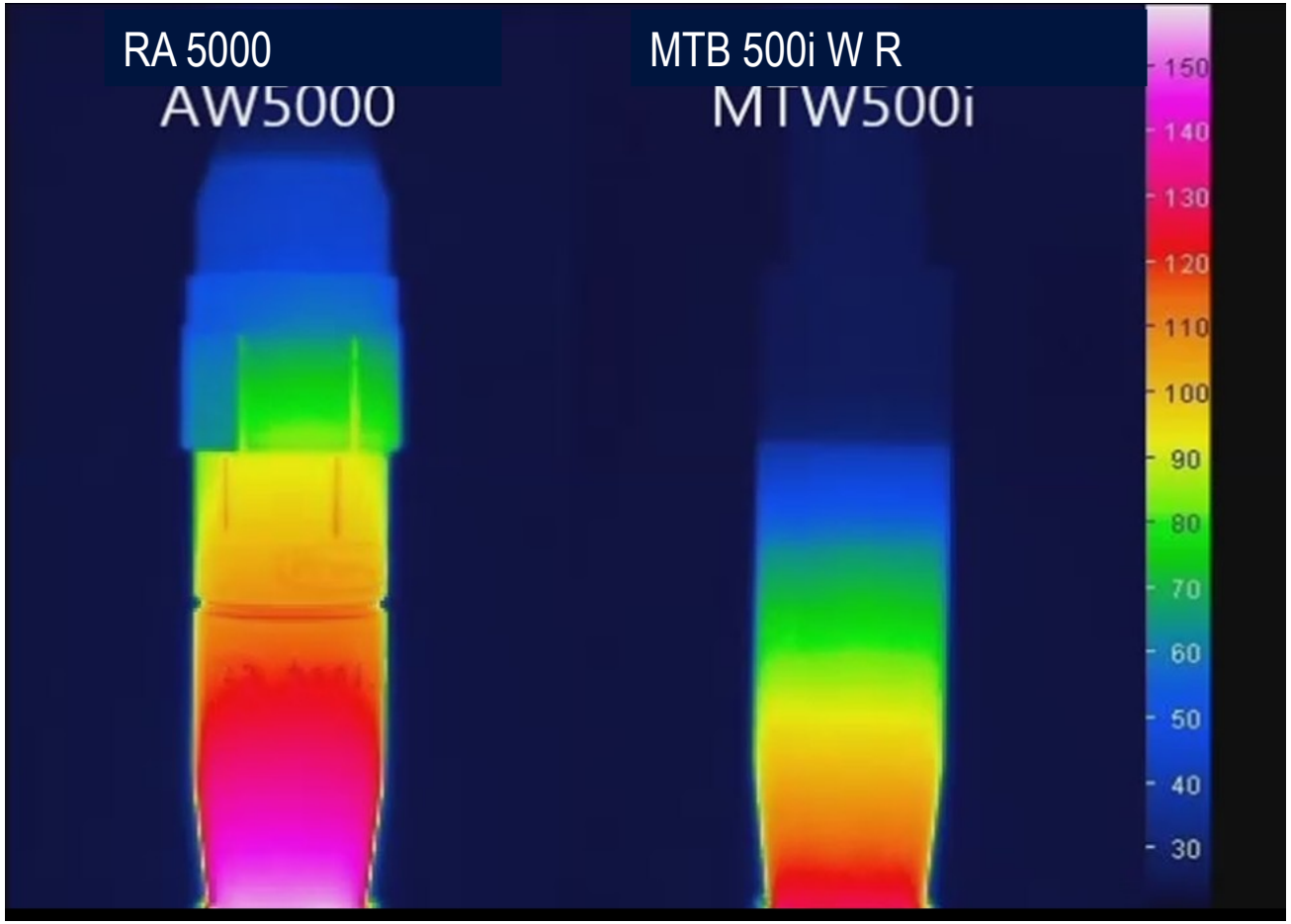
For comparison: Cooling of **RA5000**



Temperature comparison gas nozzle

- Welding power: **500A / Duty cycle 100%**
  - **RA5000**
    - Gas nozzle temperature 600°
    - 55° after approx. 4 min.
    - 50° after approx. 4 min. 45 sec.
  - **MTB 500i W R**
    - Gas nozzle temperature 400°
    - 55° after approx. 1 min. 30 sec.
    - 50° after approx. 1 min. 40 sec.

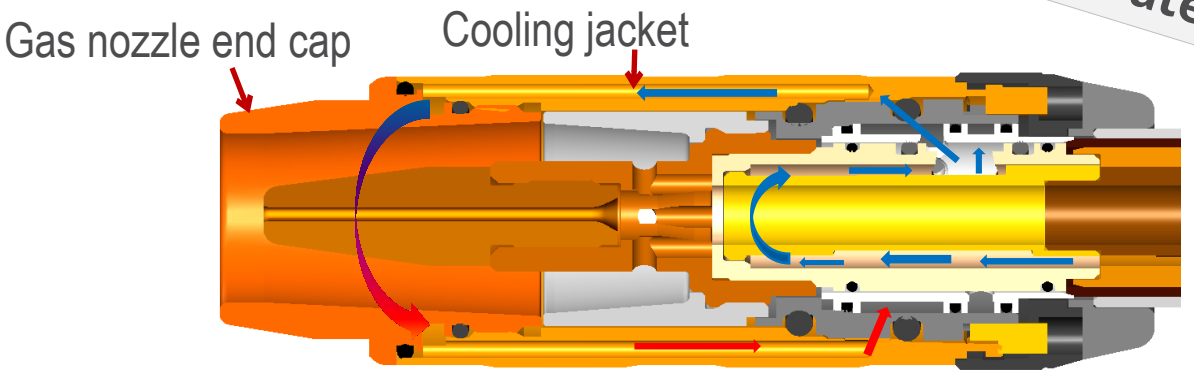
Temperature comparison RA 5000 vs MTB 500i W R



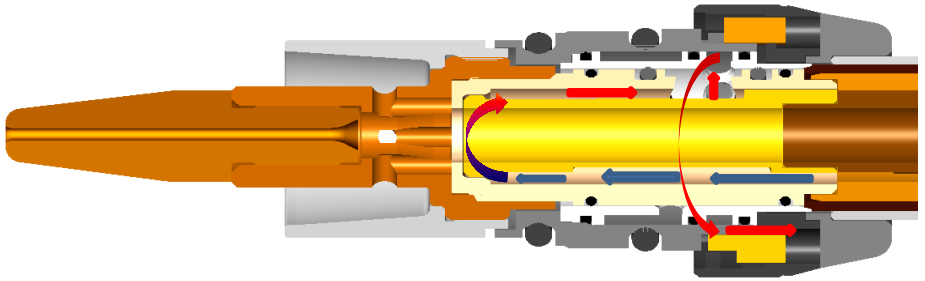
– Up to 30% temperature reduction

Cooling of MTB 700i W R

Patented



Highlight

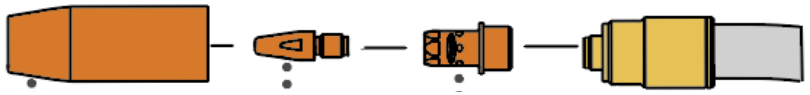


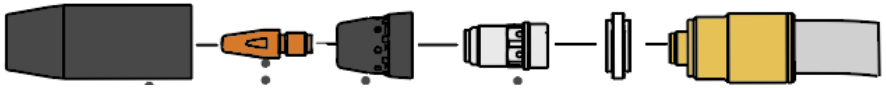
- With mounted gas nozzle, the water circulates to 100% above the gas nozzle.
- When the gas nozzle is removed, the water is still circulating through the torch body nevertheless, the integrated water stop prevents the outflow of water
- Gas nozzle is made of two parts: gas nozzle end cap (changeable) and cooling jacket

Wear parts and basic kits

Wear parts

the right wear parts for every application





Wear parts for Steel / CrNi

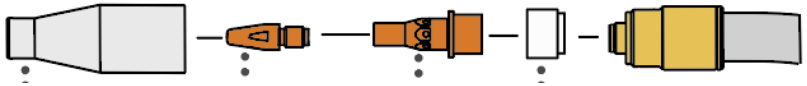
- With insulated gas nozzle or insulating sleeve
- For optimum cleaning by means of a milling tool or TC 2000

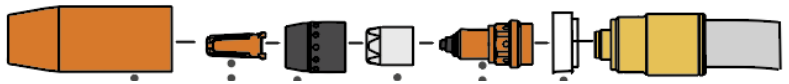
Wear parts for Aluminium / CuSi

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

Wear parts

the right wear parts for every application





Narrow gap

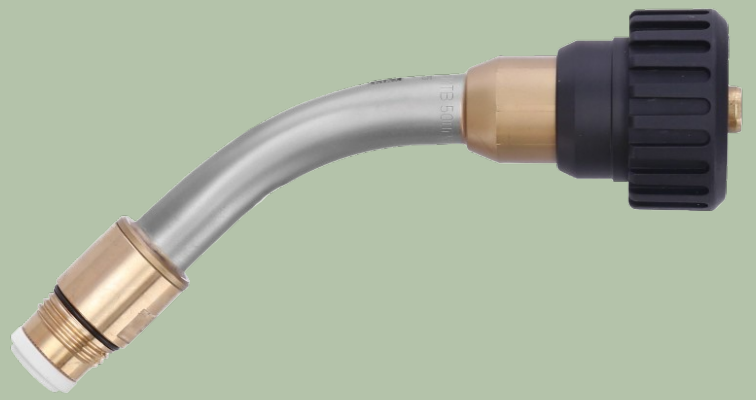
- Optimised accessibility due to narrow gas nozzle
- Attention! Automated cleaning limited

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)

Equipment recommendation Example: 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)
- FumeEx Robotics (Fume extraction set)

MTB 500i W R

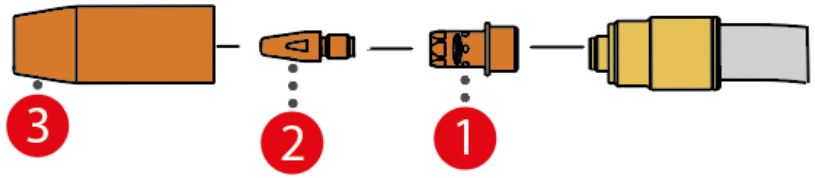
Important: Torch body with end number ,630 = without wear parts

- **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

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

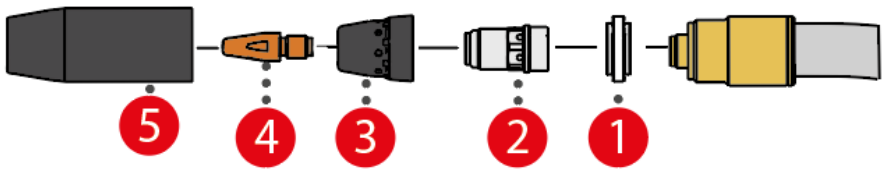
Mechanische Reinigung mit Fräser

Robacta TC 2000

Magnetical cleaning

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 ø17/ø25x61 coated
- 5b) 42,0001,4496,5 Gas nozzle ø15/ø25x61 coated
- 5c) 42,0001,4497,5 Gas nozzle ø13/ø25x61 coated
- *recommended

Cleaning

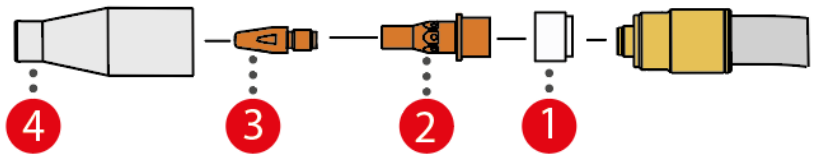
Robacta Reamer brush head

Mechanical cleaning with special brush head

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

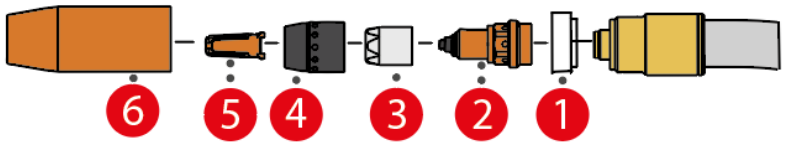
Attention: limited automated cleaning

Steel:
Robacta Reamer / TC 2000

Aluminum:
Robacta Reamer brush head

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) **Gas nozzle ø17 for steel / CrNi:**
  - 42,0001,4476,5 Gas nozzle ø17 / 44,0450,1486 Gas nozzle milling tool
- 6b) **Gas nozzle ø15 for steel / CrNi :**
  - 42,0001,4474,5 Gas nozzle ø15 / 44,0450,1385 Gas nozzle milling tool
- 6c) **Gas nozzle ø13 for steel / CrNi :**
  - 42,0001,4086,5 Gas nozzle ø13
- 6d **) Gasdüsen coated for Aluminium / CuSi**
  - 42,0001,4494,5 gas nozzle ø17
  - 42,0001,4496,5 gas nozzle ø15
  - 42,0001,4497,5 gas nozzle ø13

Cleaning

Attention: limited automated cleaning

Steel:
Robacta Reamer / TC 2000

Aluminum:
Robacta Reamer brush head

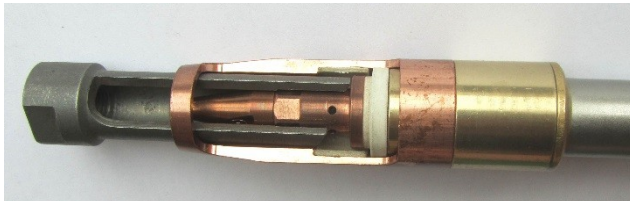
Equipment recommendation further torch bodies

… can be found in our priceliste

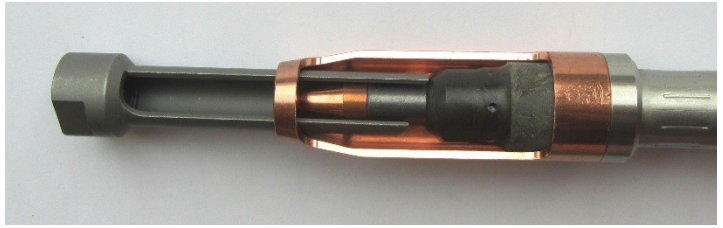
… and in the presentation„Configuration recommendation torch bodies, consumables, cleaning“. Link to presentation

Sleeve system for steel applications

Watercooled:



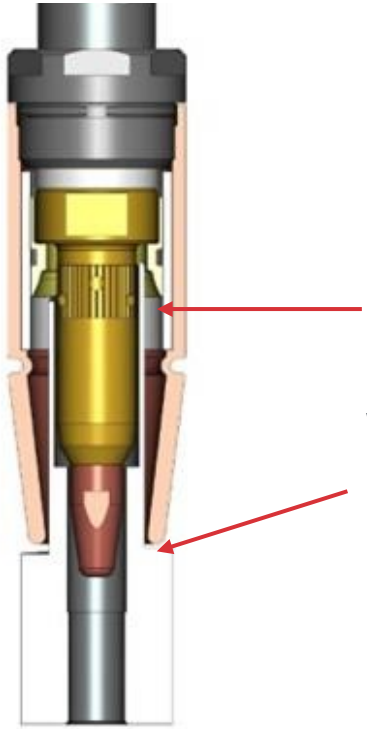
Gascooled:



- Cleaning with milling tool up to the gas holes possible
- Available for all torch body types (except MTB 250i G/W R)
- Ordering: OVT version of torch body + wear parts of sleeve system as separate positions
- MTB 700i W R only available with sleeve system

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

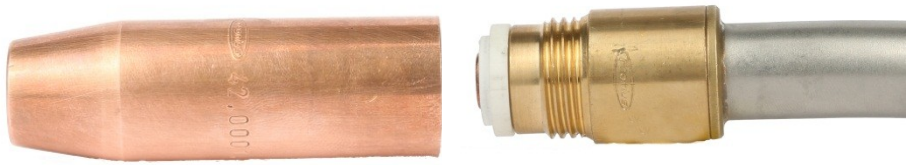
Gas nozzle milling tool with cleaning of the gas nozzle end face

– 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 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 Gas nozzle ø17 HD 42,0001,1275,5	44,0450,0119
	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

Wear parts

- Screwed gas nozzle
  - Easy operation
  - Optimum heat transfer
  - no loss of gas through the slots
  - Black coated gas nozzles available for aluminum welding
  - Constant position of the gas nozzle during welding and when cleaning the wear parts
  - No loosening of the gas nozzle possible during automated cleaning

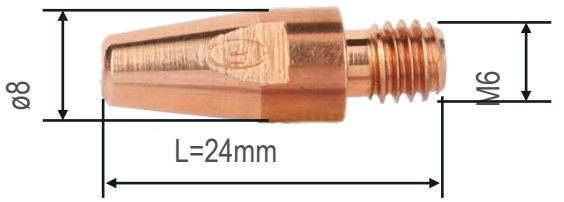


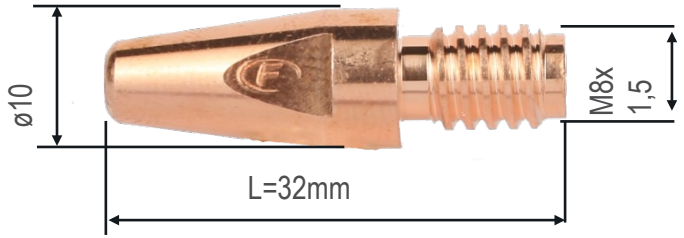
- All wear parts are replaceable
  - also gas nozzle holder can be changed from repair department

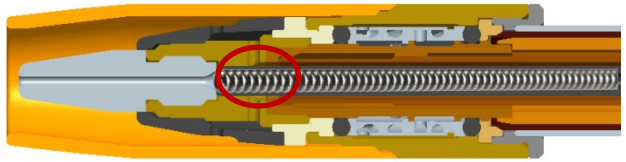
Contact tips CuCrZr

- **Types:**
  - M6 – external diameter 8mm
  - M8x1,5 – external diameter 10mm

- **Properties:**
  - Material: CuCrZr
  - No central bore in the contact tip
    - Guiding of the innerliner via nozzle stock





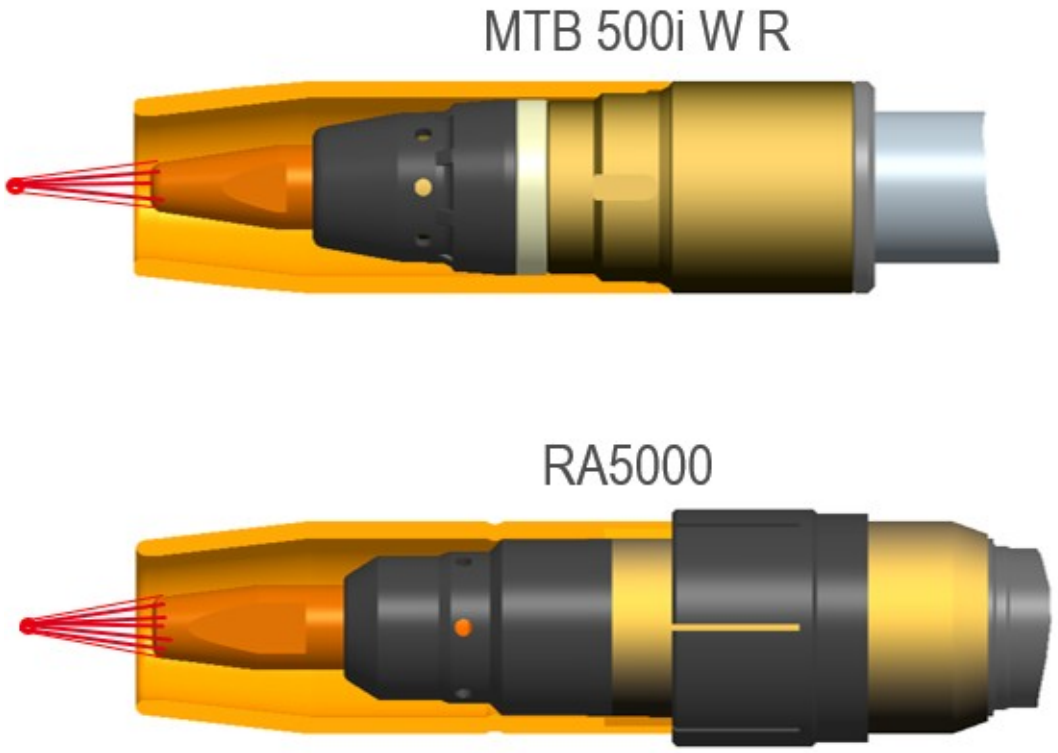


Highlight

Contact tips

Highlight

- Especially developed contact tip geometry
- Low absorption of radiant heat by new top-contact tip geometry
- **Up to 70 ° lower temperature on the wear parts**
- Therefore longer lifetime



Test results of existing customers

- **Branch Steel, machinery & engine construction:**

  - Robot application watercooled
  - Material: Steel 1,0mm
  - Torch body new: MTB 500i W R with M8x1,5 contact tip
  - Torch body old: RA 5000 with M10 contact tip
  - Performance: 160-240A PMC
  - Result: 5-times longer life time
  - **Savings per year per robot welding system: € 954,-**

Symbol picture

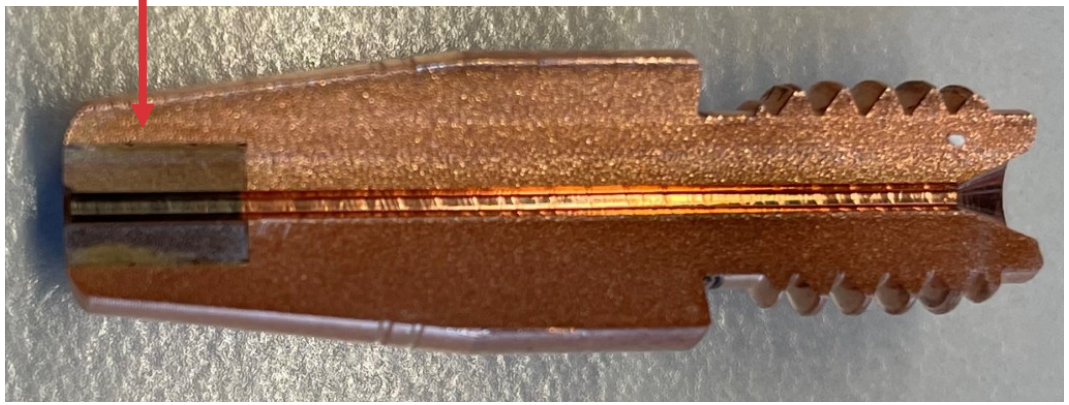
WQ Quality (Material: WCu)

Contact tips WQ – Tungsten Copper Quality

– In order to **increase the lifetime** of the contact tips, a **new quality** of contact tips is now available.

– These are **CuCrZr contact tips** with a core on **tungsten copper** in the front area

Recognition feature:
2 grooves



Contact tips WQ – Features of material

- **Tungsten-copper** materials are **used as arcing contacts** in SF6 **power switch** for **high** and **medium voltages**
- The **high temperature resistance** is one of the most important **advantages of tungsten**, while the copper content increases the electrical and thermal conductivity
  - excellent burn-off resistance
  - excellent electrical conductivity
  - high strength
  - good machinability
  - very good thermal conductivity
  - low thermal expansion

Contact tips WQ – Advantages and Application

- For applications where **grinding out of the contact tips** occurs
  - preferably with steel and CrNi
- In tests carried out, a **5-15 times longer lifetime** could be determined **compared** to the **CuCrZr** contact tubes.
- Advantages: higher availability, **increased productivity** and **reduced maintenance** effort
- The **lower change interval reduces** the **stress on the nozzle stock and gas nozzle thread**

- The contact tips are **possible to be changed** with the **Robacta CTC**

Contact tips WQ – Cost reduction

- Despite the **5 times higher price**, the **running costs can be reduced by using WQ contact tips**, depending on the lifetime increase and application area.

- **Example**:
  - **2 shift operation**
  - Changing of **CuCrZr tips: 1x per shift**
  - **Lifetime increase WQ contact tip: 5 times**
  - Required **time for contact tip change: 5 minutes**
  - **Costs of robot per hour: € 100,-**
  - **Costs of employee per hour: € 60,-**
  - This example results in a **saving of € 21,33 per day**.
  - A **10-times longer lifetime** results in a **saving of € 25,27 per day.**

Link calculation document

https://collaboration.fronius.com/pw/products/productsandservices/tor/Documents/Calculation%20of%20cost%20reduction%20contact%20tips%20WQ%20vs.%20CuCrZr.xlsx?d=w4a9e06ec3a8b4dc29d4fab2bc0421f17

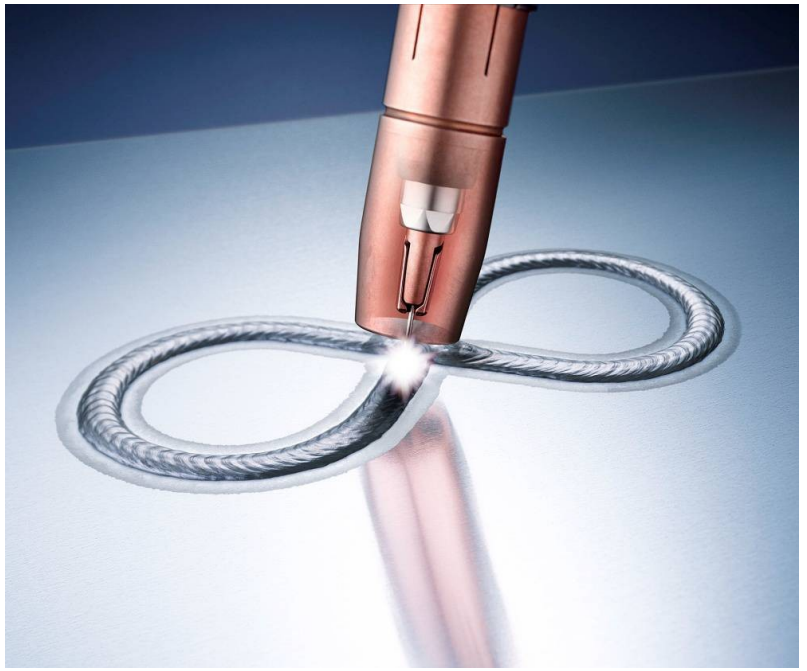
Contact tips WQ – Attention

- There are **also steel and CrNi applications** where the contact tips **bore becomes smaller**. This happens in a certain temperature range of the contact tip in combination with the quality of the additional material.
- **In these cases we don't recommend** the use of **this contact tip**. In these cases, a **larger bore hole diameter** of a standard CuCrZr contact tip should be used.

- We therefore recommend **evaluating the lifetime of the contact tips at the customer's site on the actual application**

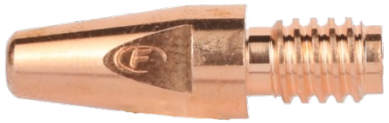
Contec

- Available for the following types of welding torches:
  - MTB 320i G R
  - MTB 400i G R
  - MTB 400i W R
  - MTB 500i W R
  - MTB 700i W R

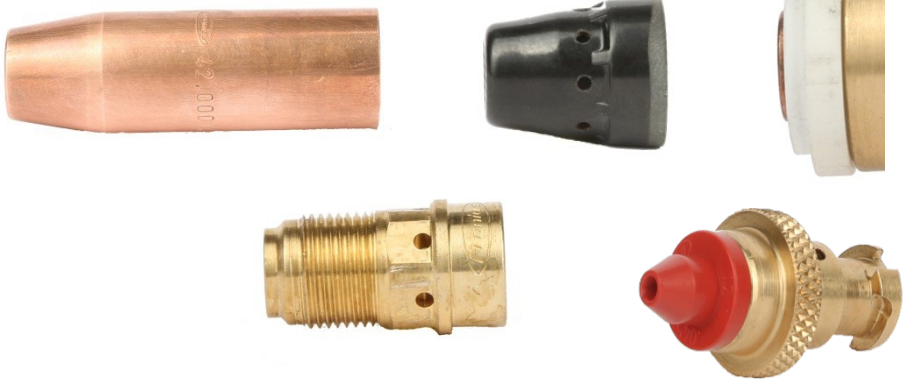


Packages & scaled prices TPS/i wear parts

- **Contact tips**
  - Package unit: 10 pc. (xx,xxxx,xxxx,**10**)
  - Packages with price advantage:
    - From 10 packages á 10 pc. (= 100 pc.)
    - From 100 packages á 10 pc. (= 1.000 pc.)



- **Gas nozzles, spatter guards, nozzle stocks, insulation rings, clamping pieces**
  - Package unit: 5 pc. (xx,xxxx,xxxx,**5**)
  - Packages with price advantage:
    - From 10 packages á 5 pcs. (= 50 pc.)
    - From 40 packages á 5 pcs. (= 200 pc.)



Packages – now color coded

- Labels have diameter specific color code now.

Same wear part system for manual and robot welding torches possible

- Wear parts system is suitable for both manual and robot welding torches
- Both welding torches can be equipped with the same wear parts.
- Recommendation Manual: Gas nozzle ends 2mm in front of the contact tip
- Recommendation Robotics: Gas nozzle and contact tip are ending straight at the same position.

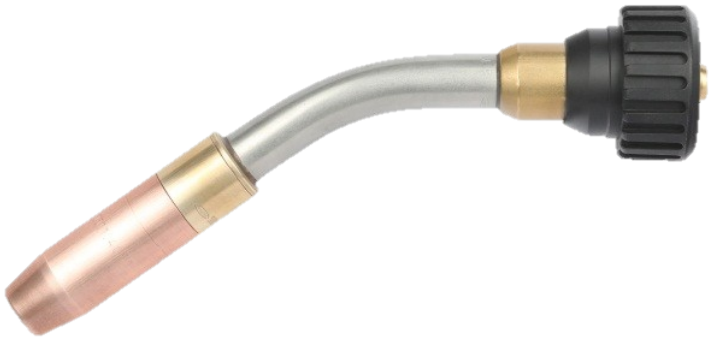
Advantage: Customer has only one type of wear parts on

stock, if manual and robotic welding torches are in use (except gas nozzle)

Further Characteristics

Torch Device ID – Intelligent up to the front

- Torch type is identified from the power source

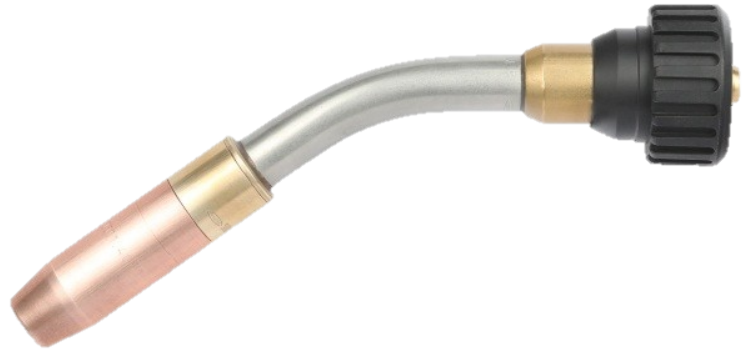


Torch Device ID – stored data

- Torch description (e.g. MTB 500i W R)
- Article number (e.g. 44,0350,3495)
- Welding current (e.g. 500A)
- Difference Single / Twin (e.g. Single)
- Maximally allowed operation temperature 0-120C° (e.g. 80°)
- Length, Height, Angle (e.g. L224, H86, 36°)
- Batch number (e.g. 24-33-xxxxxx-xxxx)
- Project number (for customer specific torch bodies)
- Testing date (e.g. 13.08.2013. / 13:45)
- Testing person (3-digit number, e.g. 127)

Characteristics torch body

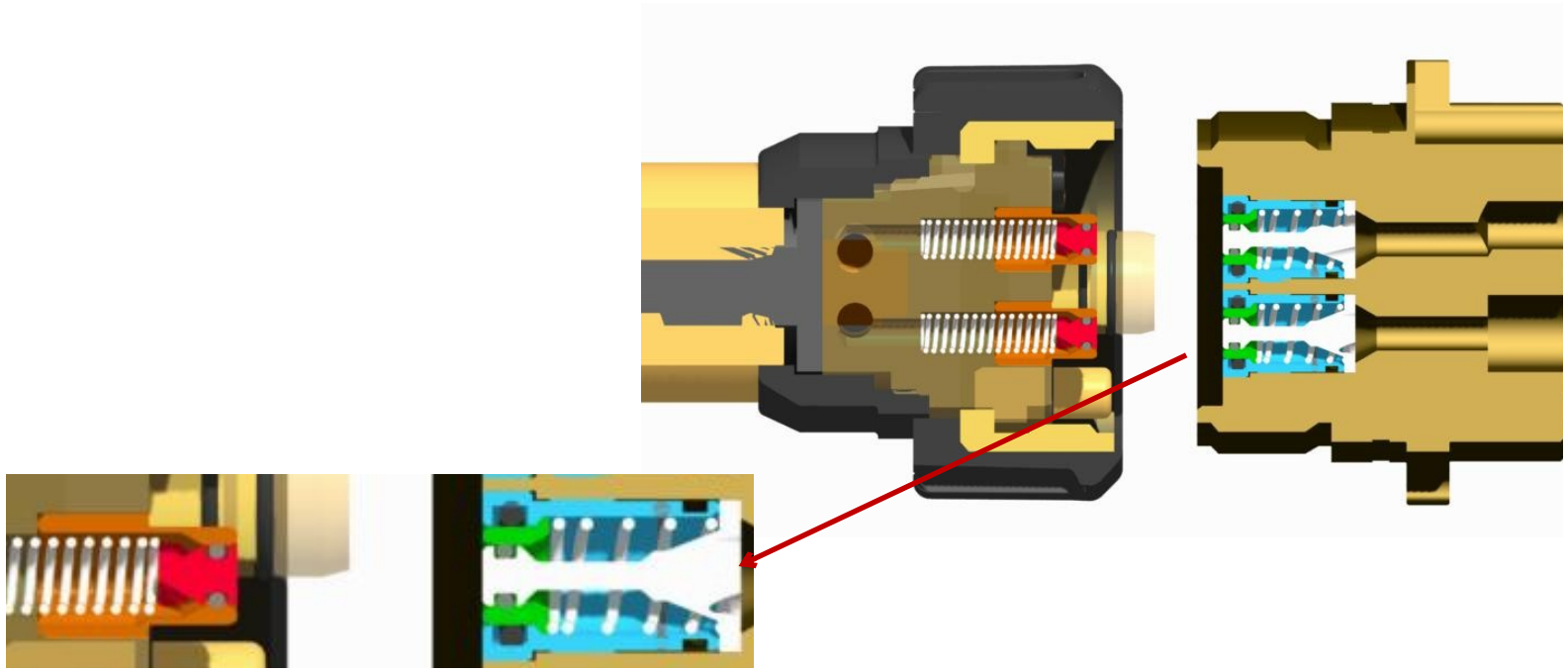
- Stainless steel outer tube for maximum stability
- Line for gas nozzle touch sensing is integrated as standard
- Insulation for the torch body below the outer tube (no external insulation required)



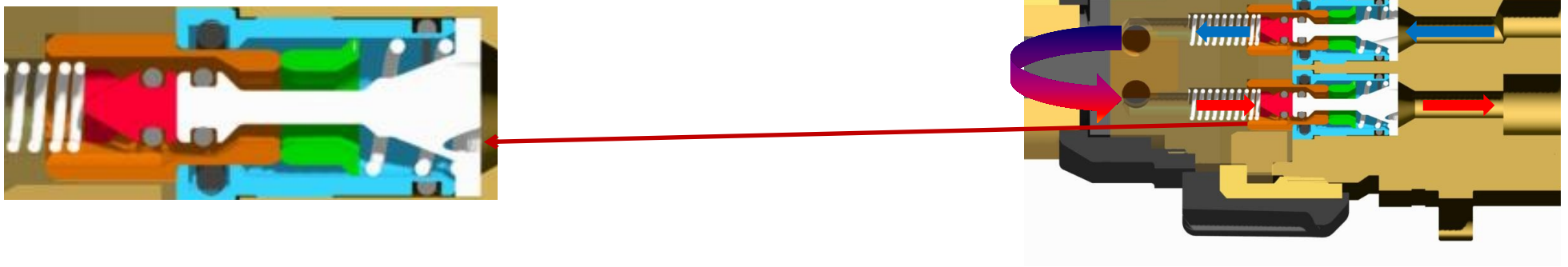
Water stop

Water stop on both sides

Torch body + Hose pack



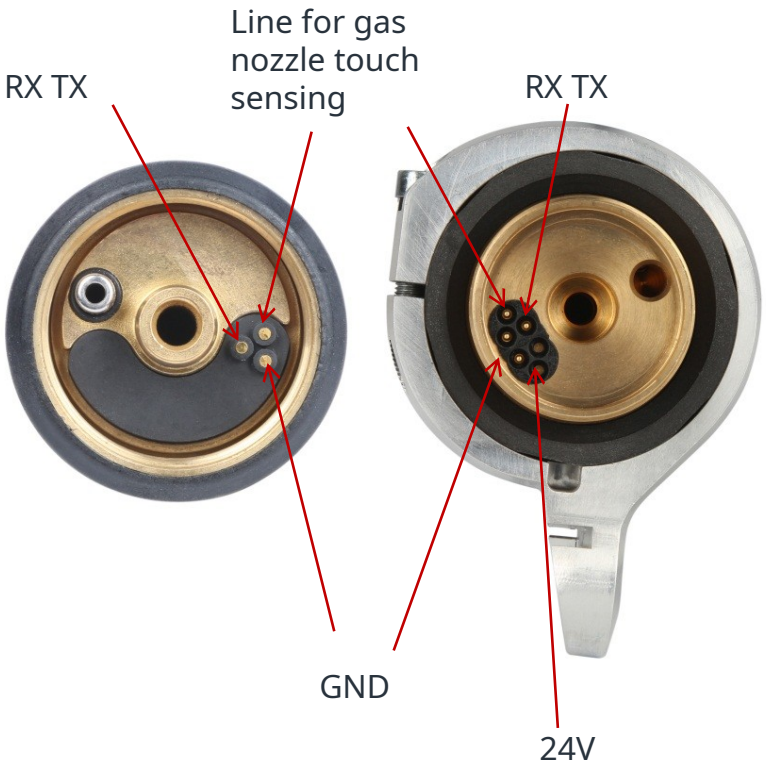
Water flow if torch body is mounted



New coupling of robot welding torches

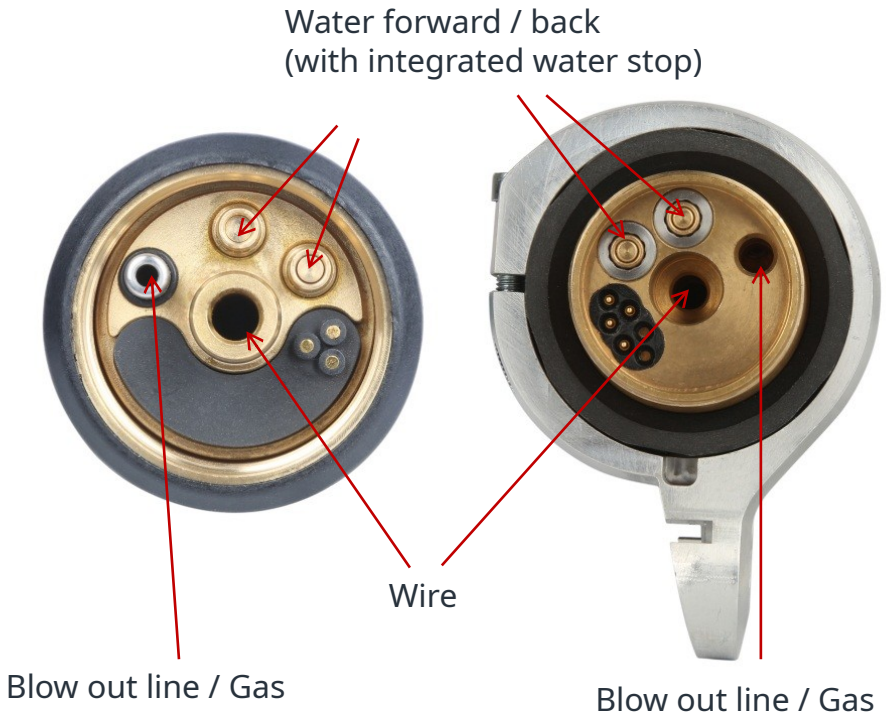
Gascooled

Torch body Hose pack



Watercooled

Torch body Hose pack



Push System

Hose packs MHP R G / MHP R W = MIG/MAG Hose Pack Roboter Gascooled / Watercooled

Gas cooled:
MHP 400i R G
MHP 400i R G PAP

Water cooled:
MHP 700i R W
MHP 700i R W PAP

Lengths: CONV: between 0,95m and 4,25m, PAP: Length especially adapted for robot type

Definition of hose pack length MHP R conventional & PAP

- Actual hose pack length from coupling to the end of the FSC housing is indicated (without torch body)
- E.g. 4,051,010 MHP 700i W R / FSC / 0,95m

Naming of PAP hose packs

- In future we do not indicate the robot type in our article description any more
- In our pricelist we have a matrix to find the appropriate hose pack
- Reason: one length can be used for more robot types

Example: watercooled
PAP hose packs

OVERVIEW HOSE PACK LENGTHS AND FLANGES

	HOSE PACK LENGTH PUSH MHP R	HOSE PACK LENGTH PUSHPULL MHP RD	HOSE PACK LENGTH PUSHPULL MHP RD FOR SB 60i	FLANGE
for ABB IRB 1520ID	1,09 m	1,075 m		42,0100,0567
for ABB IRB 2600ID 15/185	1,19 m	1,175 m	2,265 m	42,0100,0565
for ABB IRB 2600ID 8/200	1,4 m	1,385 m	2,265 m	42,0100,0565
for ABB IRB1660ID	1,09 m	1,075 m	1,735 m	42,0100,0565
for ABB IRB 1620	1,09 m	1,075 m		42,0100,0567
for Fanuc ArcMate 100iD	0,94 m	0,925 m	1,735 m	44,0350,4392
for Fanuc ArcMate 100iD/10L	1,15 m	1,135 m	1,985 m	44,0350,4392
for Fanuc ArcMate 100iD/8L	1,35 m	1,335 m	2,4 m	44,0350,4392
for Fanuc M-710iC/12L	2,28 m	2,265 m	3,4 m	42,0100,0570
for Fanuc ArcMate 120iD	1,15 m	1,135 m	2,265 m	44,0350,4392
for Fanuc ArcMate 120iD 12L	1,59 m	1,575 m	2,6 m	44,0350,4392
for Yaskawa MA2010	1,4 m	1,385 m	2,265 m	42,0100,0570
for Yaskawa MA1400-4	1,04 m	1,025 m	1,735 m	42,0100,0571
for Yaskawa MA1440	0,96 m	0,945 m	1,735 m	42,0100,0570
for Yaskawa MA1550	1,19 m	1,175 m		42,0100,0571
for Yaskawa MH24	1,12 m	1,105 m	1,935 m	42,0100,0570
for Yaskawa VA1400	1,04 m	1,025 m		42,0100,0571

Characteristics hose packs

- Operation elements: Wire forward, wire back

- Anti kink spring on both sides at conventional hose packs

Fronius System Connector (FSC)

- MTG and MTW torches are equipped with the FSC connection
- Tool-free, simple and quick welding torch change without missoperation
- Process security because of defined current transfer
- No external control connectors - all control signals are integrated in the central connection
- One central connector for all applications (Manual-, Machines- and Robot systems – PAP and conventional)

Connection for water forward and return

Control signals Blow out line Gas line

Steel- and CrNi-inner liners without isolation for gas- and water cooled configuration

Patented

- Gas sealed with specific diameter clamping piece - almost no loss of gas

Watercooled

Highlight
Steel- and CrNi-inner liners without insulation

Gascooled

New inner liners for perfect process stability

Bare steel inner liners gas- and water cooled:

- ø 0,8: external diameter 4,3mm
- ø 1,0 – 1,6: external diameter **4,8mm**

CrNi-bare inner liners for CrNi gas- and water cooled:

- ø 0,8: external diameter 4,3mm
- ø 1,0 – 1,6: external diameter **4,8mm**

Coated steel inner liner, for all materials:

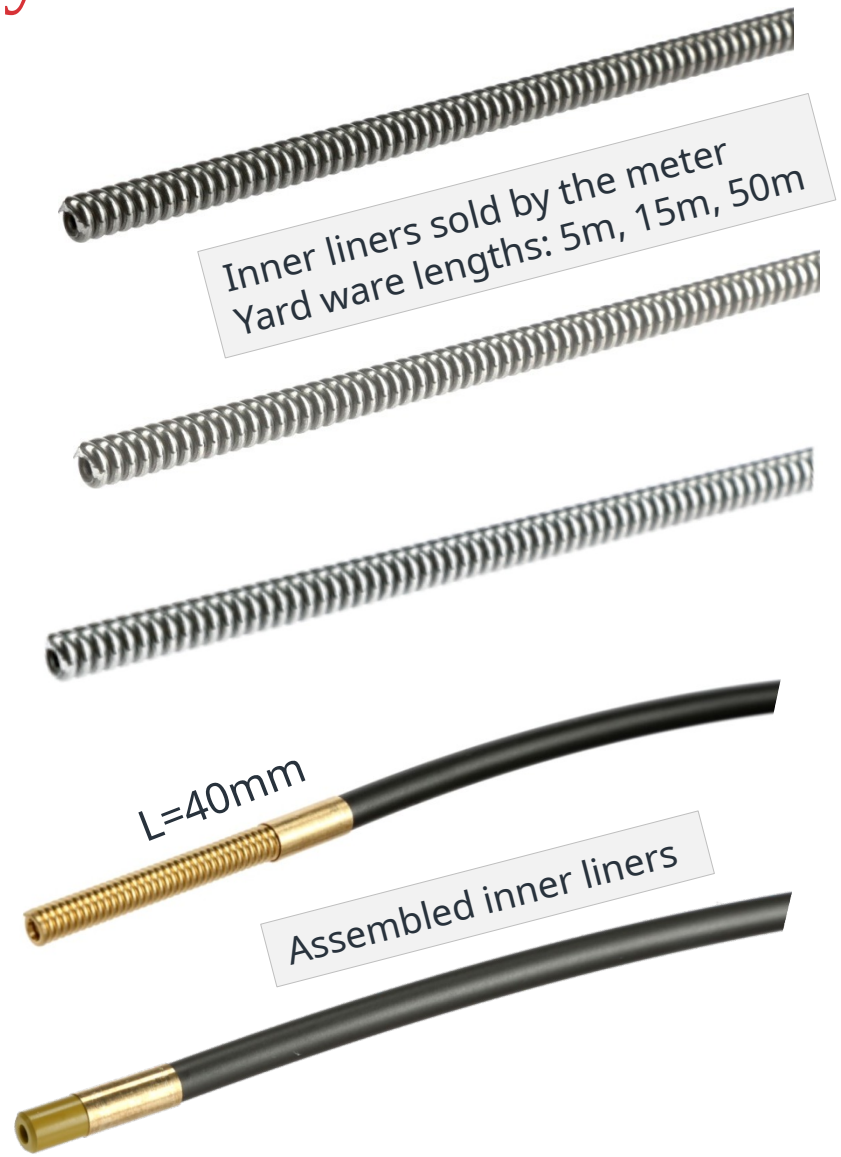
- ø 0,8: external diameter 4,4mm
- ø 1,0 – 1,6: external diameter **4,8mm**

Combi inner liners for Al gas cooled and CuSi for gas and water cooled

- ø 0,8 – 1,6: external diameter **4,8mm**

Combi inner liners for Al water cooled

- ø 0,8 – 1,6: external diameter **4,8mm**



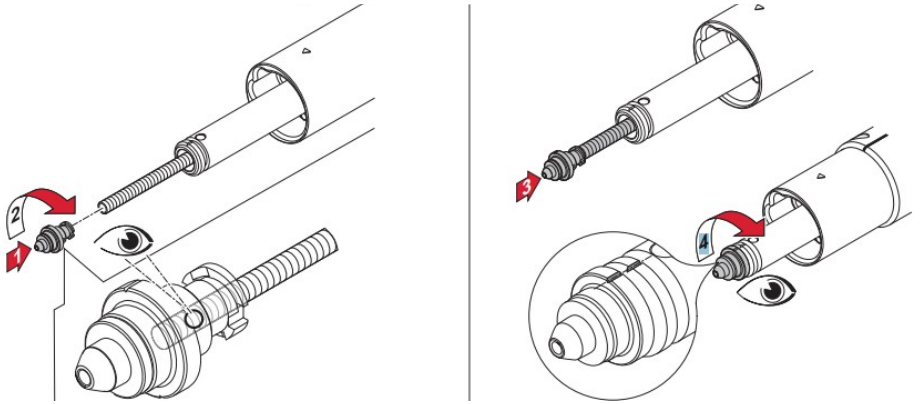
Clamping piece

- **Used for all materials and inner liners**

- **Tool free installation of the inner liner by the meter**

1) Clamping nut is placed on inner liner
2) Screw on rotation to the right
3) Push clamping piece incl. Inner liner into the FSC
4) Fixation in the FSC with a 90 ° rotation

   (Correct fixing position is marked)



Clamping piece – now color coded

Grey with penetration
ø0,8 for combi liners with
outer diameter ø4,8

Grey ø0,8
for steel inner liners with
outer diameter ø4,3

Blue
ø0,9/ø1,0

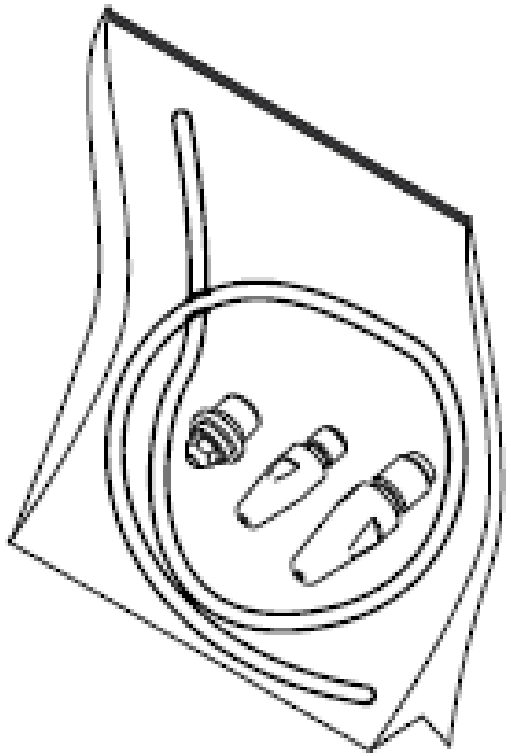
Red
ø1,2

Black
ø1,6

Green
ø2,0

Basic kits

- **Basic kits Push**
  - Steel ø0,8 / ø0,9 / ø1,0 / ø1,2 / ø1,4 / ø1,6
  - CrNi ø0,8 / ø0,9 / ø1,0 / ø1,2 / ø1,4 / ø1,6
  - Aluminum (G) & CuSi (G&W) ø0,8 / ø1,0 / ø1,2 / ø1,6
  - Aluminum(W) ø0,8 / ø1,0 / ø1,2 / ø1,6 / ø2,0
  - Universal: ø0,8 / ø0,9 / ø1,0 / ø1,2 / ø1,4 / ø1,6

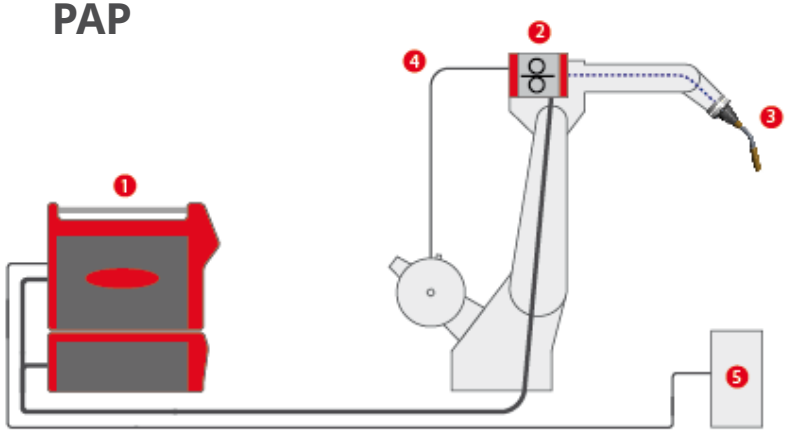


Characteristics hose packs

- PAP hose packs can be mounted / changed from the front side
- Line for gas nozzle touch sensing is integrated as standard
- 2-wire bus
- Integrated blow out line
- Current cable made of single components for gascooled hose packs (higher life time) – high quality current cable for gas- and watercooled
- Wire feed hose is integrated into the hosepack
- Diffusion resistant gas hose
- Spatter resistant corrugated protection hose at Robacta Drive and PAP hose packs
- Temperature resistant fabric protection hose at conventional hose packs

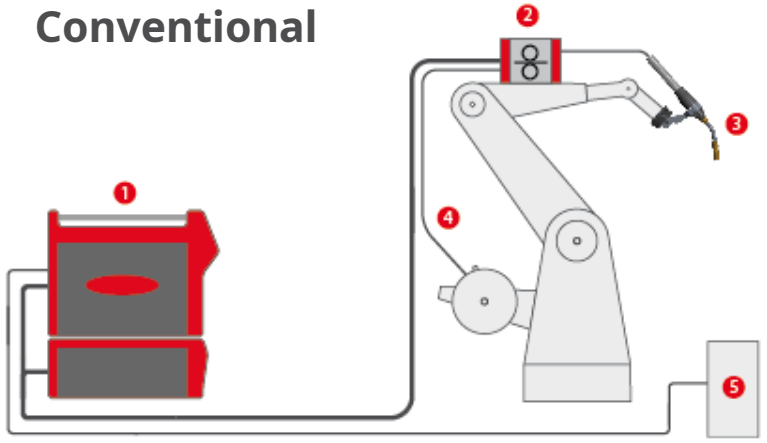
Configuration examples Push

PAP



1. Power source / Cooling unit
2. Main wire feeder WF 15i PAP/ WF 25i PAP / WF30i PAP
3. Welding torch
4. Wirefeeding hose
5. Torch cleaning device / Wire cutting device

Conventional



1. Power source / Cooling unit
2. Main wire feeder WF 15i R/ WF 25i R / WF30i R
3. Welding torch
4. Wirefeeding hose
5. Torch cleaning device / Wire cutting device

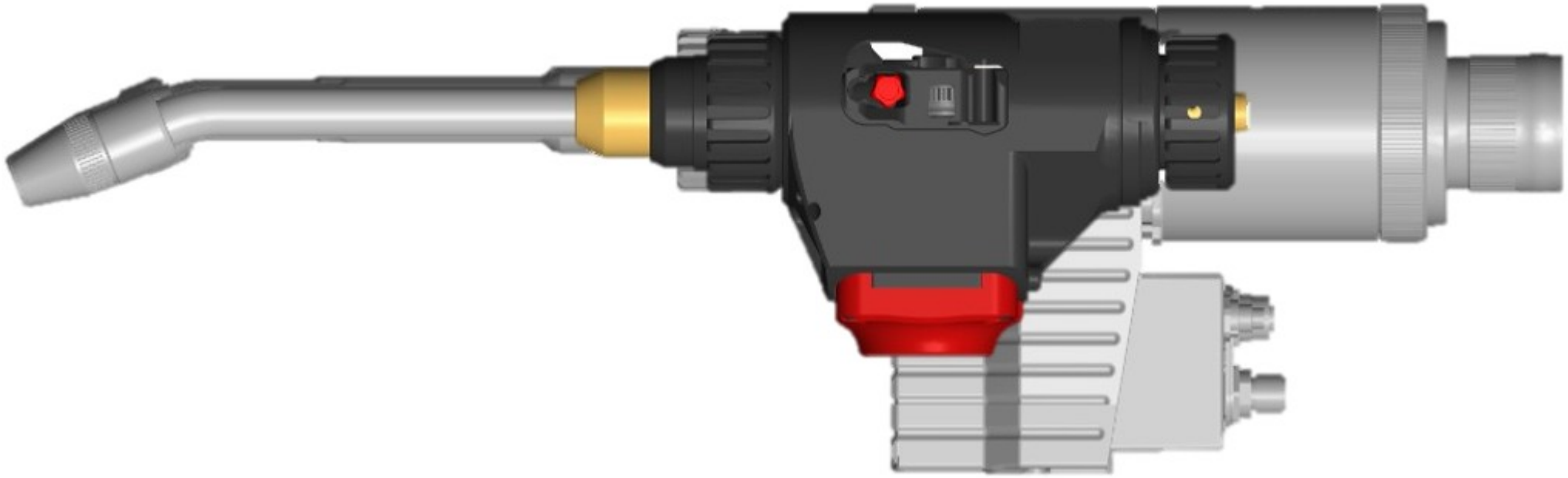
TPS/i PushPull System

Size comparison

- Small and compact design for best accessibility
- Low weight – usable with common welding robots with 3kg payload at high travel speed

Robacta Drive TPS/i

Robacta Drive TPS



Robacta Drive CMT TPS

Robacta Drive

Hose pack MHP RD G / W = MIG/MAG Hose Pack Robacta Drive Gas / Water

WF 25i Robacta Drive / G / W = WireFeeder

One drive unit for CONV & PAP

MHP 400i RD/G/PAP

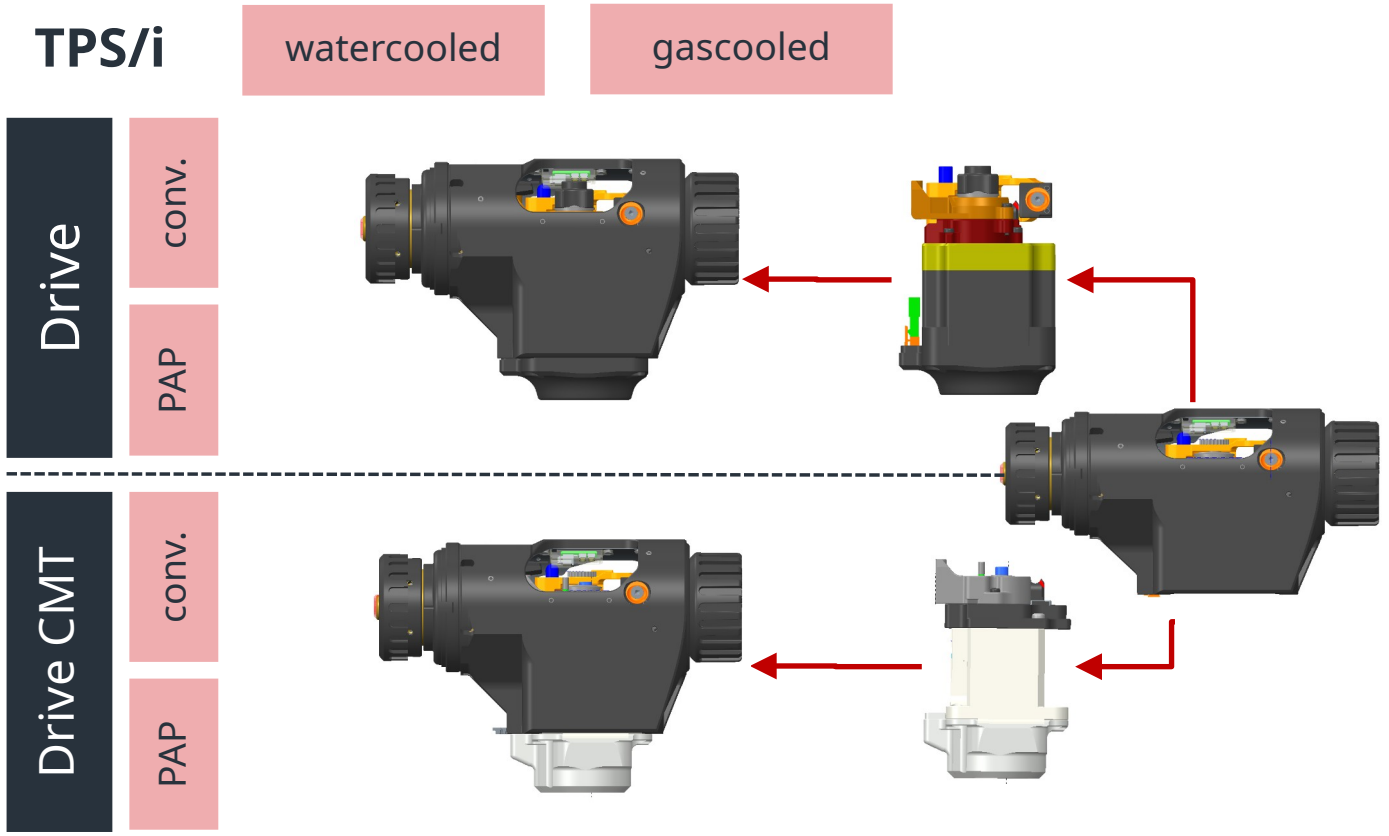
MHP 500i RD/W/PAP

+ WF 25i Robacta Drive

MHP 400i RD/G (conventional)
MHP 700i RD/W (conventional)
+ WF 25i Robacta Drive

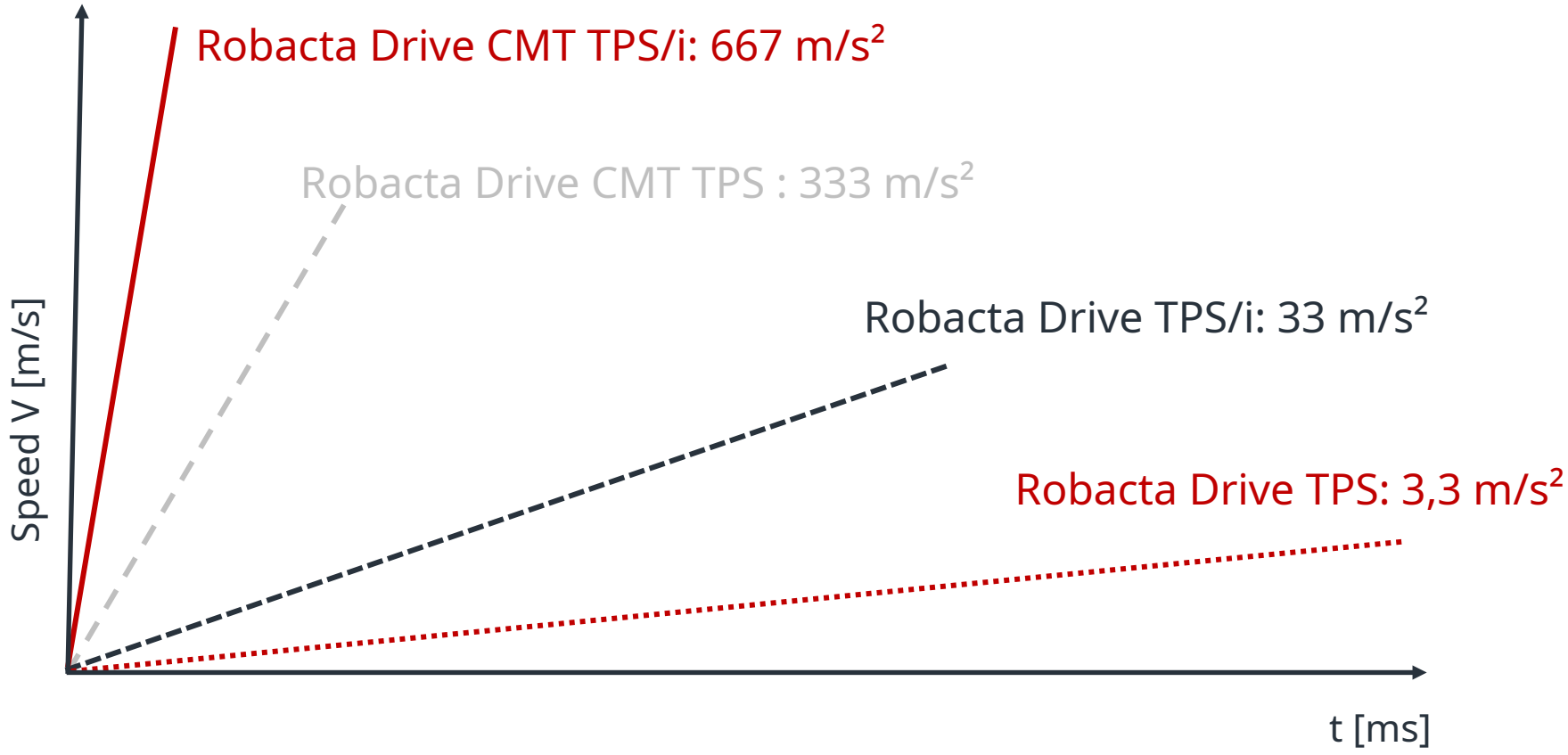
Lenghts: RD CONV: 0,935m – 3,735m, RD PAP: Length especially adapted for robot type

Modularity


TPS/i
watercooled
gascooled
Drive
conv.
PAP
Drive CMT
conv.
PAP

Comparison dynamic

Robacta Drive and Robacta Drive CMT



Highspeed video PMC MIX Drive

Synergic Lines V1.6.4: ø1,0mm AlSi 5 und AlMg 5
ø1,2mm AlSi 5 und AlMg 4,5 Mn

Technical data Robacta Drive

- Brushless 3-phase step motor
- Precise optical encoder
- Spur gear
- 2 roller motor plate (interlocked drive and pressure rolle
- Weight: 1,78 kg
- Wire feed speed: 1 - 25m/min / 39.4 – 984 inch/min.
- Wire diameter: 0,8 - 2,4mm / .030“ – 3/32”
- Temperature sensor (as overheat protection)
- TCP accuracy Drive unit and torch body +/- 0,5mm

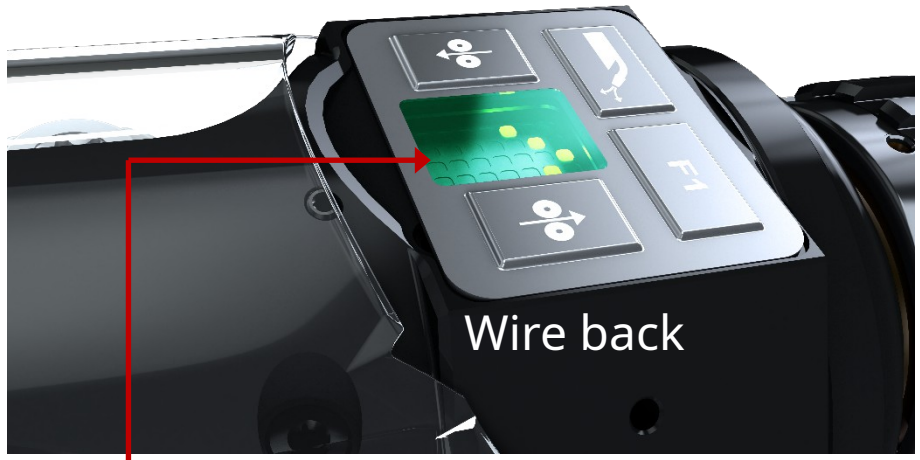
Simple adjusting of the contact pressure incl. display

- Pull out adjusting screw

- Adjust contact pressure by turning the screw

- Display of adjusted contact pressure

User Interface Robacta Drive

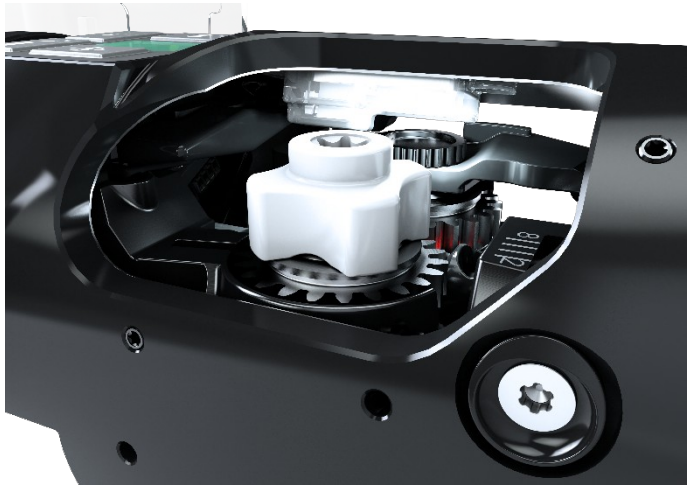


F1 = free programmable

Dot-matrix display
Possible displays (not fixed yet):
/ error message (E)
/ touchsensing (t)
/ gas test (G)
/ ...

Change of rollers Robacta Drive

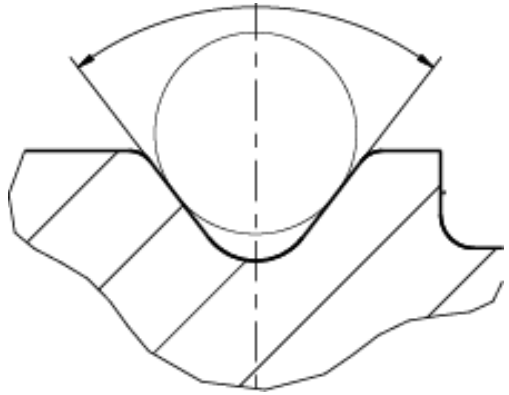
- Change of rollers is like at the existing Robacta Drive
- Pressure roller is swiveled out and unscrewed
- Driver roller is unscrewed from the top



LED for illumination of the wear parts

Feed rollers

- Feed rollers for diameter 0,8K / 0,9K / 1,0K / 1,2K / 1,4K/ 1,6K / 2,0K / 2,4K
  - In future with color code
- Combination groove of V and H groove
- Optimized for a perfect wire feeding
- Material: heat treatable steel

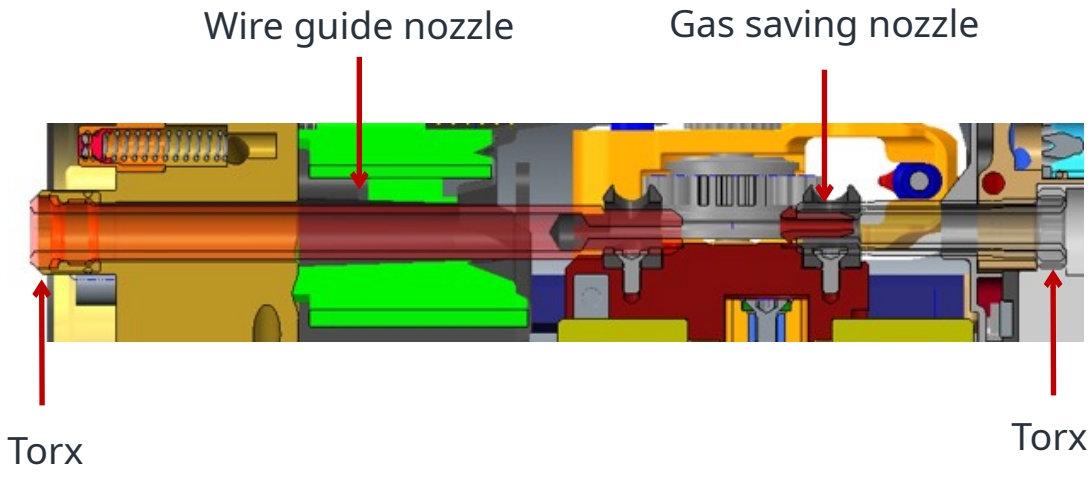


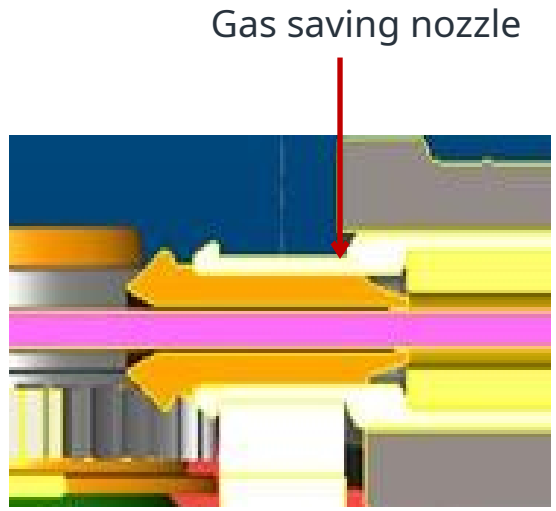
Wire guide nozzles

- Gas saving nozzle minimizes loss of gas out of the torch body towards feed rollers

  = reduction of gas costs

- Simple mounting / changing of the nozzles via Torx





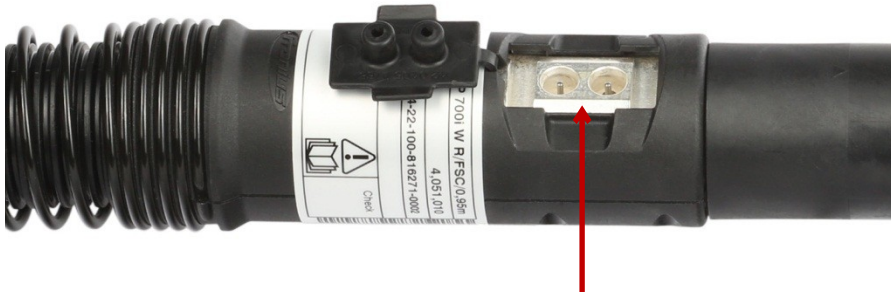
Very small tolerances

Robacta Drive

- Simple and fast change of the hose pack due to coupling between drive unit and hose pack
  - Robacta Drive: Customer can change the hose pack by himself
  - Lower stockhousing costs, e.g. only one second hose pack on stock
  - Tool-less change of hose pack and drive unit
- Coupling between drive unit and hose pack is similar to coupling between torch body and drive unit.

Fronius System Connector (FSC)

- MTG and MTW torches are equipped with the FSC connection
- Tool-free, simple and quick welding torch change without missoperation
- Process security because of defined current transfer
- No external control connectors - all control signals are integrated in the central connection
- One central connector for all applications (Manual-, Machines- and Robot systems – PAP and conventional)



Connection for water forward and return

Control signals Blow out line Gas line

Pin description

A: 2-wire bus

B: 2-wire bus

C: 24 Volt

D: ground

E: CrashBox signal

F: gas nozzle touch sensing

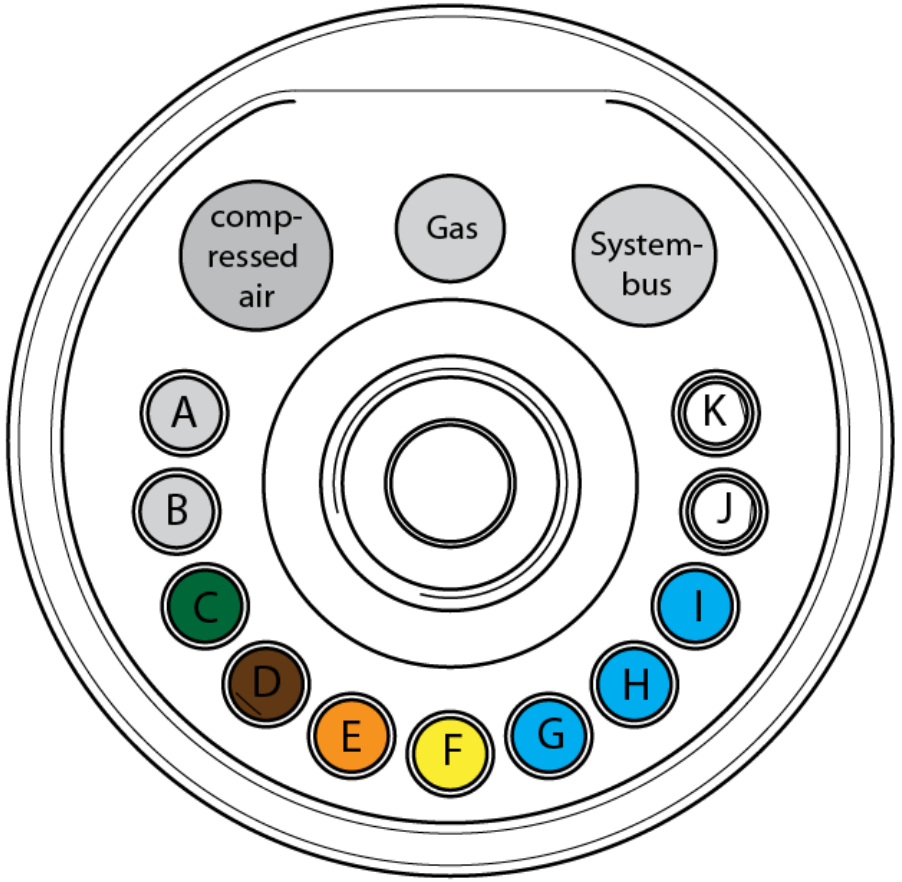
G: Motor line 1

H: Motor line 2

I: Motor line 3

J: not connected

K: not connected



Inner liner Robacta Drive for hose pack and torch body

Bare steel inner liners gas- and water cooled:

- ø 0,8: external diameter 4,3mm
- ø 1,0 – 1,6: external diameter **4,8mm**

CrNi-bare inner liners for CrNi gas- and water cooled :

- ø 0,8: external diameter 4,3mm
- ø 1,0 – 1,6: external diameter **4,8mm**

Graphit inner liners for Aluminum

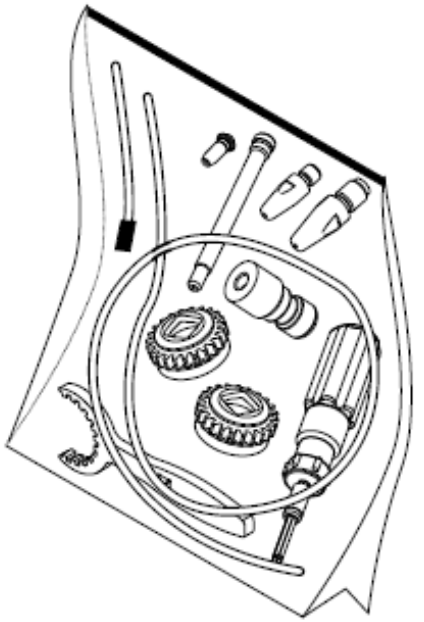
- ø 0,8 – 1,6: external diameter **4,8mm for hose pack**
- **TBL = Torch body liner for torch body**
  - für Aluminum gascooled & CuSi
  - für Aluminum watercooled

For a perfect welding process we use also a diameter specific inner liner in the hose pack now.

Basic kits

Basic kits PushPull

- Steel ø0,8 / ø0,9 / ø1,0 / ø1,2 / ø1,4 / ø1,6
- CrNi ø0,8 / ø0,9 / ø1,0 / ø1,2 / ø1,4 / ø1,6
- Aluminium (G) & CuSi ø0,8 / ø1,0 / ø1,2 / ø1,6
- Aluminium (W) ø0,8 / ø1,0 / ø1,2 / ø1,6 / ø2,0



Characteristics hose packs

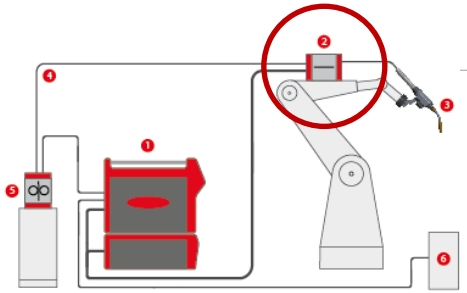
- PAP hose packs can be mounted / changed from the front side
- Line for gas nozzle touch sensing is integrated as standard
- 2-wire bus
- CMT & Drive: SpeedNet
- Integrated blow out line
- Current cable made of single components for gas cooled hose packs (higher life time) – high quality current cable for gas- and water cooled
- Wire feed hose is integrated into the hosepack
- Diffusion resistant gas hose
- Spatter resistant corrugated protection hose at Robacta Drive and PAP hose packs
- Temperature resistant fabric protection hose at conventional hose packs

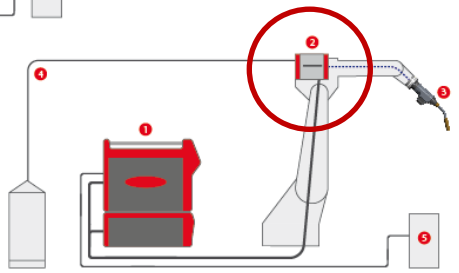
SB 500i R = Split Box

- Control for PushPull Systems (without motor)
- Significant improvement of the regulation between Drive units Push-Pull systems
- Shorter PushPull hose packs
  - Less power dissipation
  - Faster change of the hose packs
  - Cheaper hose packs as spare parts
  - Easier change of inner liners
- Light weight and robust design
- Connection to media (current, water, gas)
- Right and left version

CONV

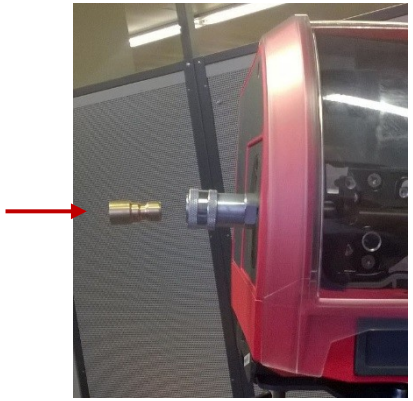
PAP





Installation of inner liner

Step 1: Connect the hose pack to the split box without clamping piece



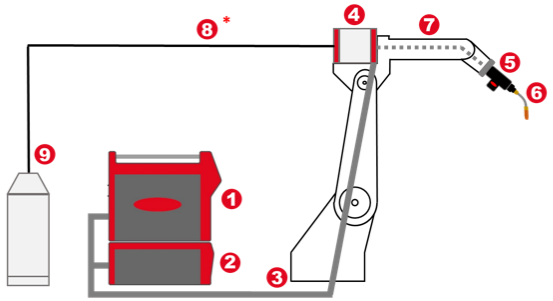
Step 2: Put the cutting tube into the QuickConnect

Step 3: Put the inner liner through the Splitbox until it stops inside of the Drive unit.

Step 4: Cut the inner liner at the end of the cutting tube.

Configurations PowerDrive

PAP

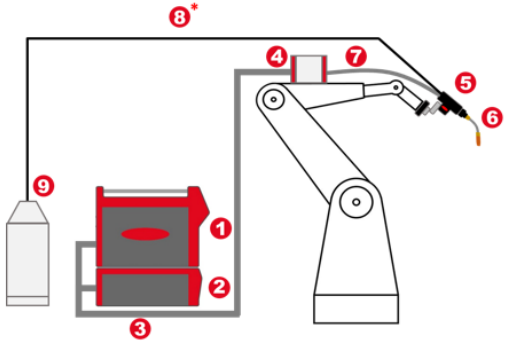


1. Stromquelle TPS/i
2. Kühlkreis CU
3. Verbindungsschlauchpaket HP
4. Splitbox SB500i R
5. WF 25i Robacta Drive
6. Brennerkörper MTB/i R
7. Brenner Schlauchpaket MHP/i R
8. Drahtförderschlauch mit Seele
9. Drahtfass

Maximale Drahtförderstrecke zwischen Antriebseinheit und Fass
/ mit Drahtförderschlauch 6m
/ mit PowerLiner 8m
Unterstütze Drahtdurchmesser 0,8-1,2mm

! Im System dürfen keine Umlenkrollen bzw. Richtstrecken verwendet werden

Conventional



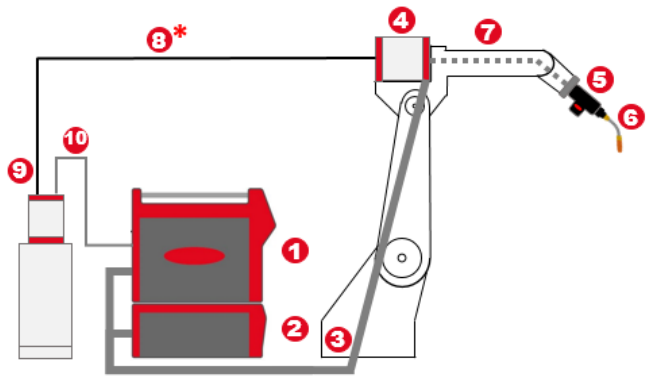
1. Stromquelle TPS/i
2. Kühlkreis CU
3. Verbindungsschlauchpaket HP
4. Splitbox SB500i R
5. WF 25i Robacta Drive
6. Brennerkörper MTB/i R
7. Brenner Schlauchpaket MHP/i R
8. Externer Drahtförderschlauch mit Seele
9. Drahtfass

Maximale Drahtförderstrecke zwischen Antriebseinheit und Fass
/ mit Drahtförderschlauch 6m
/ mit PowerLiner 8m
Unterstütze Drahtdurchmesser 0,8-1,2mm

! Im System dürfen keine Umlenkrollen bzw. Richtstrecken verwendet werden

Configurations PushPull

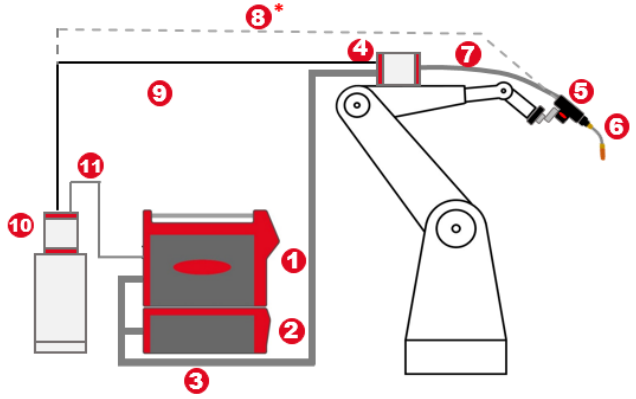
PAP



1. Stromquelle TPS/i
2. Kühlkreis CU
3. Verbindungsschlauchpaket HP
4. Splitbox SB500i R
5. WF 25i Robacta Drive
6. Brennerkörper MTB/i R
7. Brenner Schlauchpaket MHP/i R
8. Drahtförderschlauch
9. WF25i Reel 4R / WF30i Reel 2R
10. SpeedNet Cable CON

Maximale Drahtförderstrecke zwischen Antriebseinheit und WF Reel
/ mit Drahtförderschlauch 8m
/ mit PowerLiner 10m

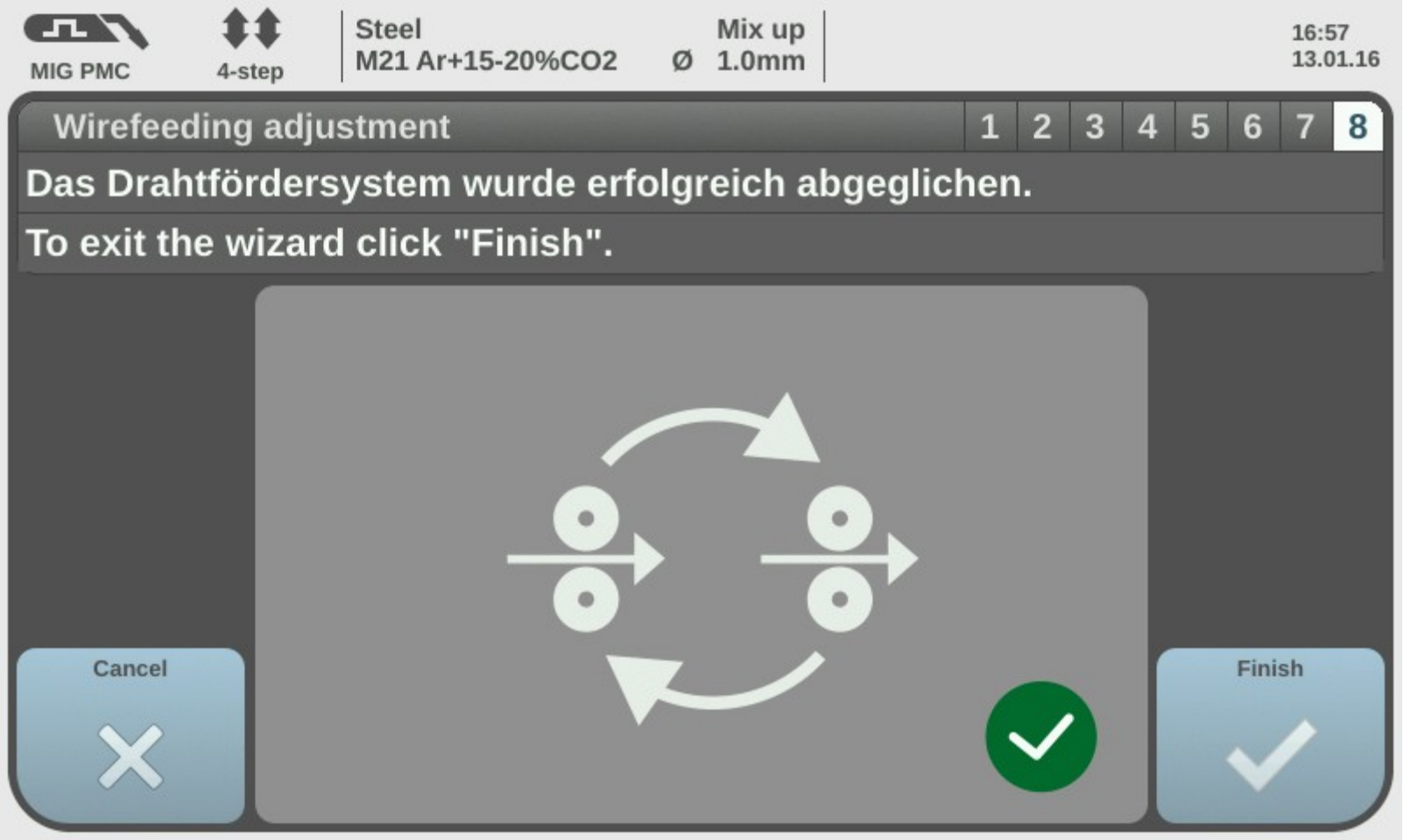
Conventional



1. Stromquelle TPS/i
2. Kühlkreis CU
3. Verbindungsschlauchpaket HP
4. Splitbox SB 500i R
5. WF 25i Robacta Drive
6. Brennerkörper MTB/i R
7. Brenner Schlauchpaket MHP/i R
8. Ext. Drahtf. mit Seele ab Q4 2016
9. Drahtförderschlauch ohne Seele
10. WF 30i Reel 2R / WF 25i Reel 4R
11. SpeedNet Cable CON

Maximale Drahtförderstrecke zwischen Antriebseinheit und WF Reel
/ mit Drahtförderschlauch 8m
/ mit PowerLiner 10m

System alignment



WF 60i Robacta Drive CMT

WF 60i Robacta Drive CMT

- Small and compact design for best accessibility
- Low weight fur usage with robots with low payload at high travel speed

Robacta Drive CMT TPS

Robacta Drive CMT TPS/i

Robacta Drive

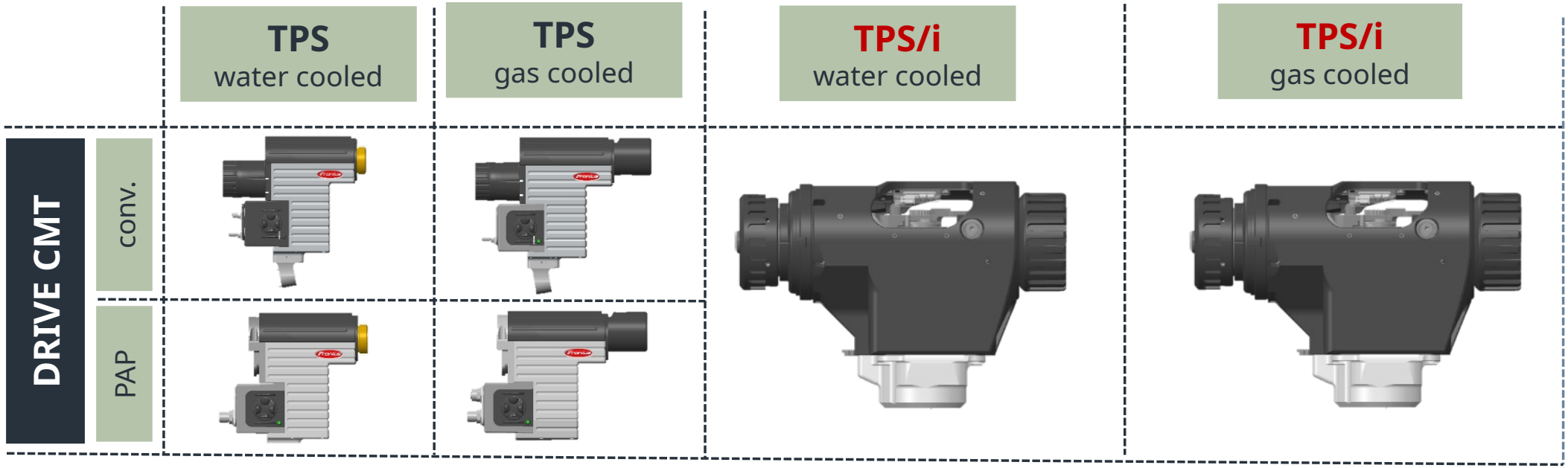
Hose pack MHP RD G / W = MIG/MAG Hose Pack Robacta Drive Gas / Water
WF 60i Robacta Drive CMT / G / W = WireFeeder

One drive unit for
CONV & PAP

MHP 400i RD/G/PAP
MHP 500i RD/W/PAP
+ WF 60i Robacta Drive CMT

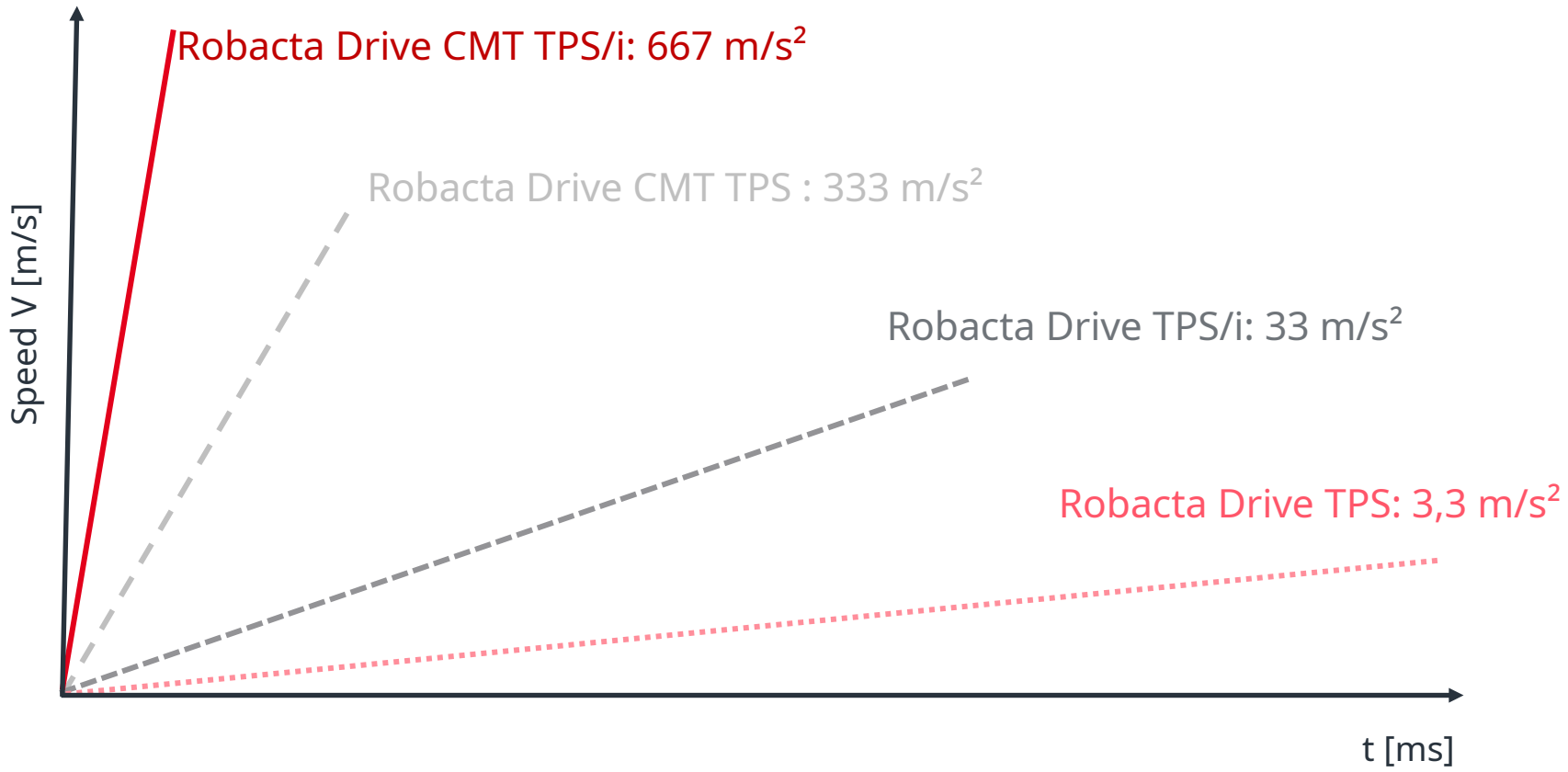
MHP 400i RD/G (conventional)
MHP 500i RD/W (conventional)
+ WF 60i Robacta Drive CMT

TPS/i Drive CMT – modularity



Comparison dynamic

Robacta Drive and Robacta Drive CMT



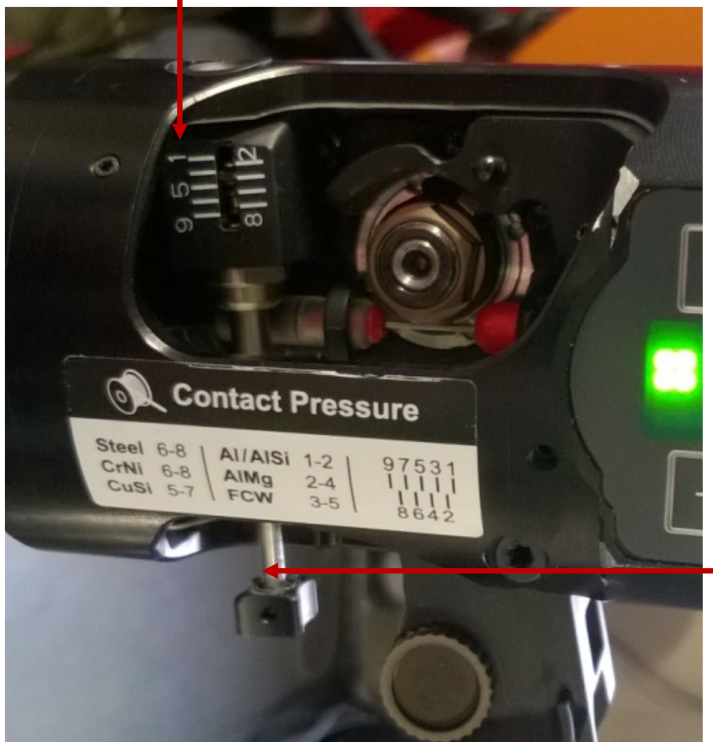
TPS/i CMT – Stable even at high travel speed

Technical data Robacta Drive CMT

- Brushless servo motor
- Precise optical encoder
- Direct drive without gear
- 2 roller motor plate (interlocked drive and pressure roller)
- Weight: 1,6 kg
- Wire feed speed: 1 - 60m/min
- Wire diameter: 0,8 - 1,4mm (Aluminum up to 1,6mm)
- Temperature sensor (as overheat protection)
- TCP accuracy Drive unit and torch body +/- 0,5mm

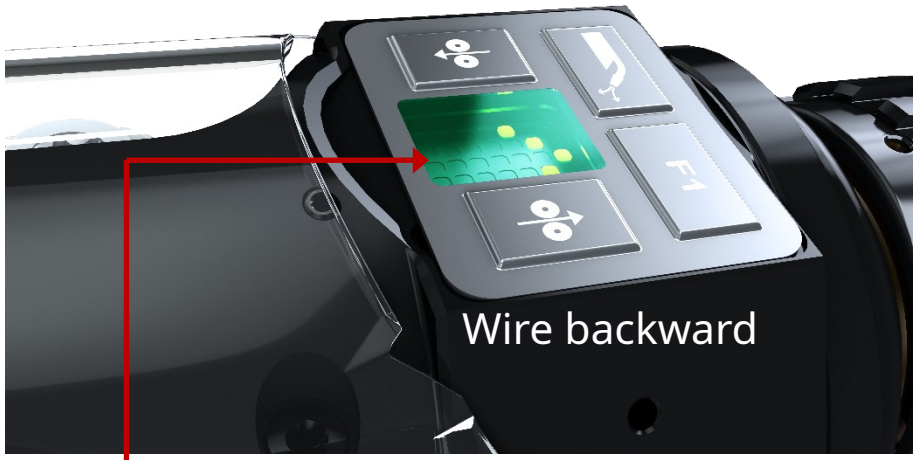
Simple adjusting of the contact pressure incl. display

Display of adjusted contact pressure



- Pull out adjusting screw
- Adjust contact pressure by turning the screw

User Interface Robacta Drive



F1 = free programmable

Dot-matrix display

Possible displays (not fixed yet):

/ error message (E)

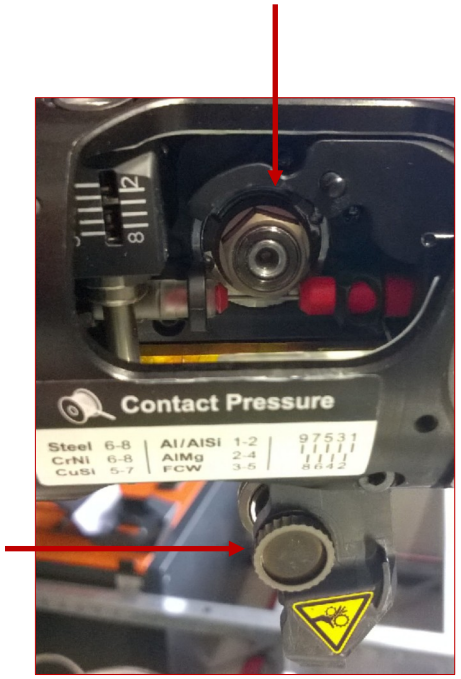
/ touchsensing (t)

/ gas test (G)

/ ...

Change of rollers Robacta Drive

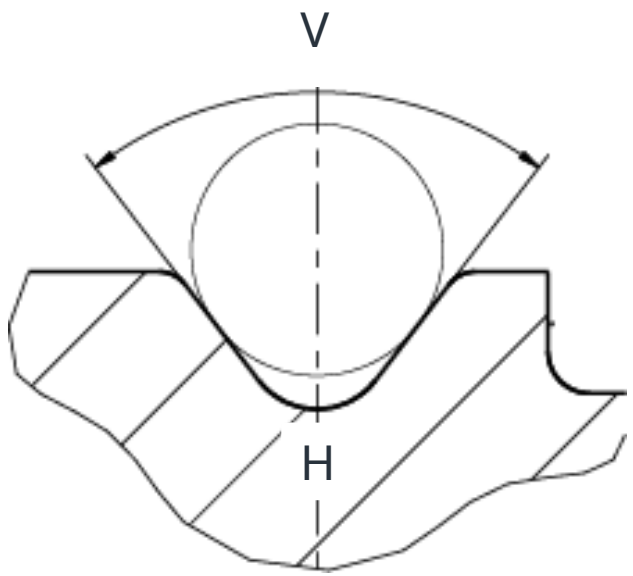
- Change of rollers is like at the existing Robacta Drive
- Pressure roller is swiveled out and unscrewed
- Driver roller is unscrewed from the top



LED for illumination of the wear parts

Feed rollers

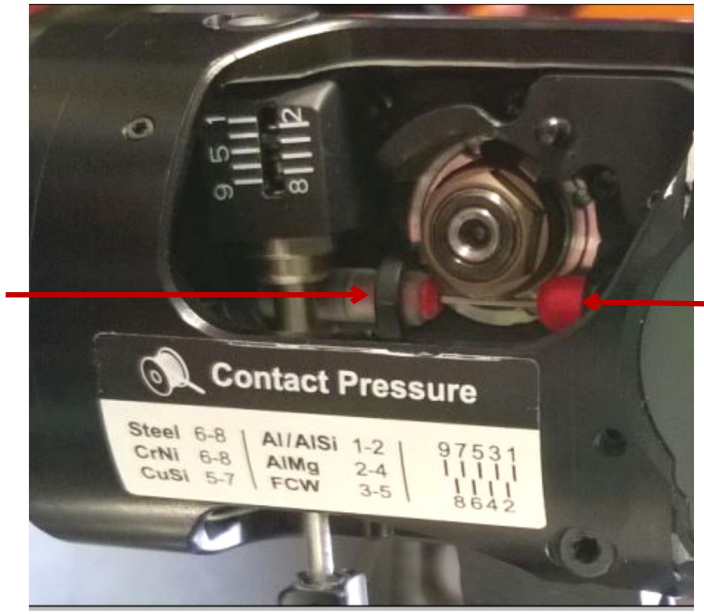
- Feed rollers for diameter 0,8K / 0,9K / 1,0K / 1,2K / 1,4K/ 1,6K
  - In future with color marking
- Combination groove of V and H groove
- Optimized for a perfect wire feeding
- Material: heat treatable steel



Wire guide nozzles

- Gas saving nozzle minimizes loss of gas out of the torch body towards feed rollers
- Therefore lower gas consumption = reduction of costs
- Simple mounting / changing of the nozzles via Torx

Gas saving nozzle



Wire guide nozzle

Robacta Drive CMT

- Simple and fast change of the hose pack due to coupling between drive unit and hose pack
  - Robacta Drive: Customer can change the hose pack by himself
  - Lower stockhousing costs, e.g. only one second hose pack on stock
  - Tool-less change of hose pack and drive unit
- Coupling between drive unit and hose pack is similar to coupling between torch body and drive unit.

Fronius System Connector (FSC)

- MTG and MTW torches are equipped with the FSC connection
- Tool-free, simple and quick welding torch change without misoperation
- Process security because of defined current transfer
- No external control connectors - all control signals are integrated in the central connection
- One central connector for all applications (Manual-, Machines- and Robot systems – PAP and conventional)

Connection for water forward and return

Control signals Blow out line Gas line

Pin description

A: 2-wire bus

B: 2-wire bus

C: 24 Volt

D: ground

E: CrashBox signal

F: gas nozzle touch sensing

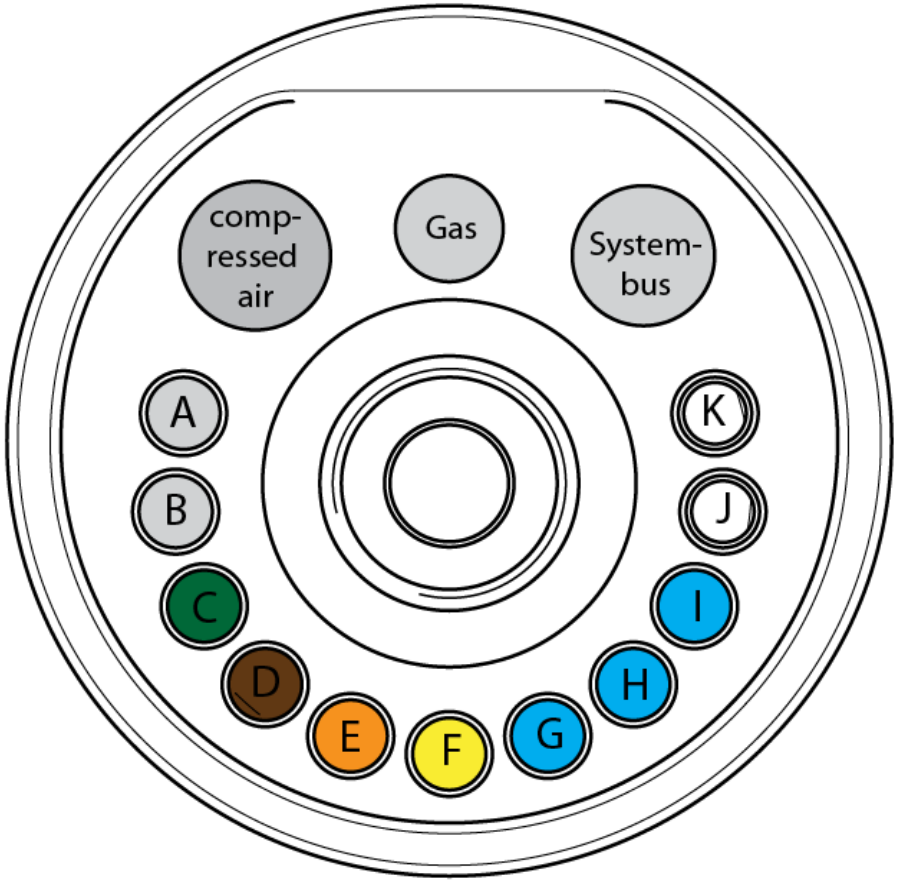
G: Motor line 1

H: Motor line 2

I: Motor line 3

J: not connected

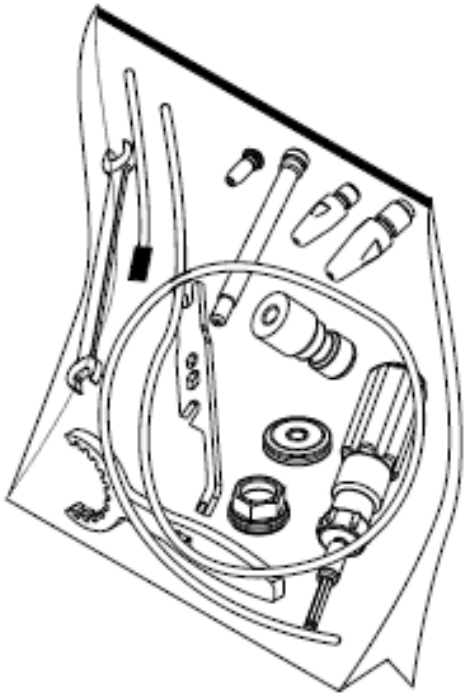
K: not connected



Basic kits CMT

Basic kits CMT

- Steel ø0,8 / ø0,9 / ø1,0 / ø1,2 / ø1,4
- CrNi ø0,8 / ø0,9 / ø1,0 / ø1,2 / ø1,4
- Aluminium (G) & CuSi ø0,9 / ø1,0 / ø1,2 / ø1,4 / ø1,6
- Aluminium (W) ø0,9 / ø1,0 / ø1,2 / ø1,4 / ø1,6



Characteristics hose packs

- PAP hose packs can be mounted / changed from the front side
- Line for gas nozzle touch sensing is integrated as standard
- SpeedNet
- Integrated blow out line
- Current cable made of single components for gascooled hose packs (higher life time) – high quality current cable for gas- and watercooled
- Wire feed hose is integrated into the hosepack
- Diffusion resistant gas hose
- Spatter resistant corrugated protection hose at Robacta Drive and PAP hose packs
- Temperature resistant fabric protection hose at conventional hose packs

SB 500i R / SB 60i R

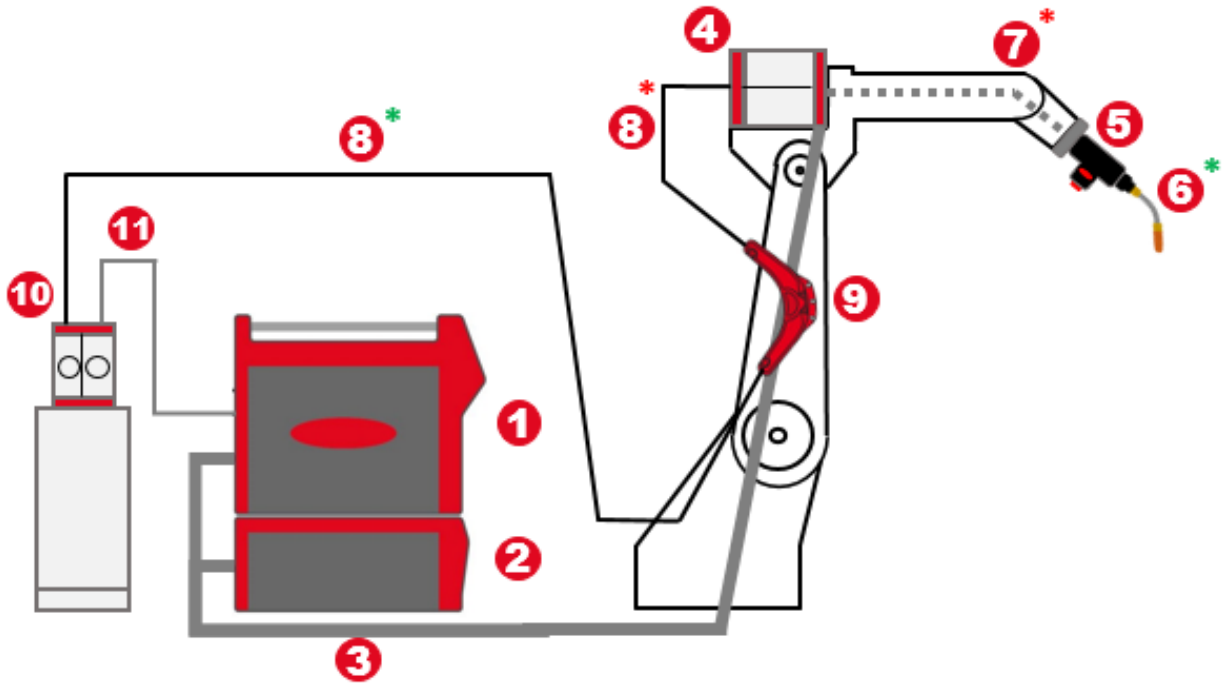
- Control for PushPull Systems (without Motor)
- Significant improvement of the regulation between Drive units Push-Pull systems
- Shorter PushPull hose packs
  - Less power dissipation
  - Faster change of the hose packs
  - Cheaper hose packs as spare parts
  - Easier change of inner liners
- Robust design
- Connection to media (current, water, gas)
- Right and left version

SB 500i for PAP

SB 60i with integrated wire buffer for conventional

Configuration PAP

REEL WIRE FEEDER WITH WIRE DRUM



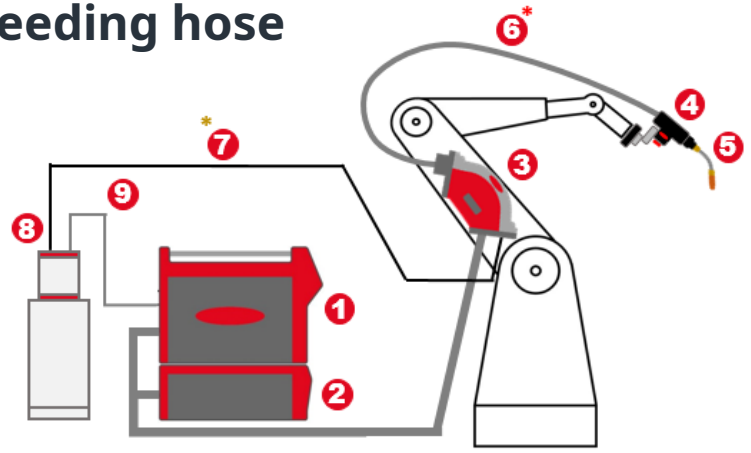
Maximum wire feed distance
/ between Drive unit and wire buffer 4m
/ between wire buffer and WF Reel 6m

1. Power source TPS/i
2. Cooling unit CU
3. Connection hose pack HP
4. Splitbox SB500i R
5. WF 60i Robacta Drive CMT
6. Torch body MTB/i R
7. Torch hose pack MHP/i R
8. Wire feeding hose with inner liner
9. Wire buffer
10. WF 30i Reel 2R / WF 25 Reel 4R
11. SpeedNet Cable CON

Configuration conventional

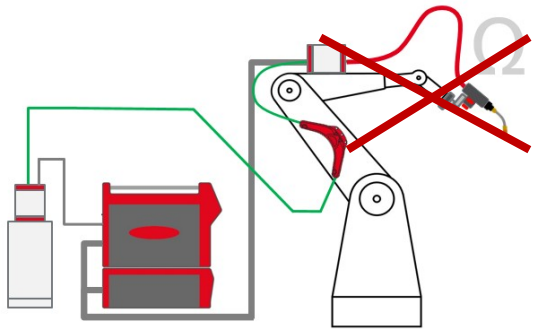
with SB 60i R and internal wire feeding hose

Recommendation



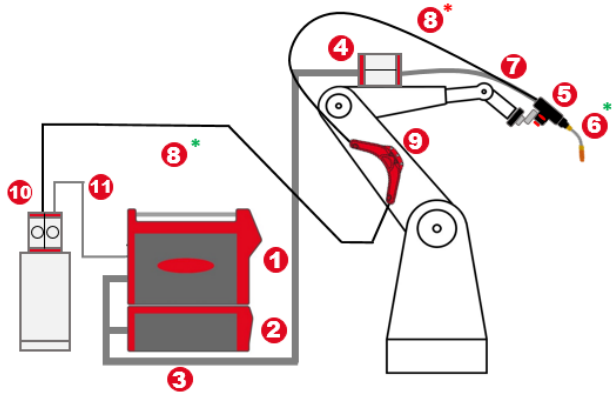
1. Stromquelle TPS/i
2. Kühlkreis CU
3. Splitbox SB 60i R
   Inkl. HP Con R, HP Con-HP Ext
4. WF 60i Robacta Drive CMT
5. Rohrbogen MTBi
6. Brenner Schlauchpaket MHPi EXT
7. DFS mit Seele*
8. WF 30i Reel 2R
9. SpeedNet Cable CON

* Maximale Schlauchpaket Länge zwischen Antriebseinheit und Drahtpuffer 4m; zwischen Drahtpuffer und WF Reel 6m
* Immer die größte Seele verwenden * Drahtdurchmesser passende Seele



With external wire feeding hose

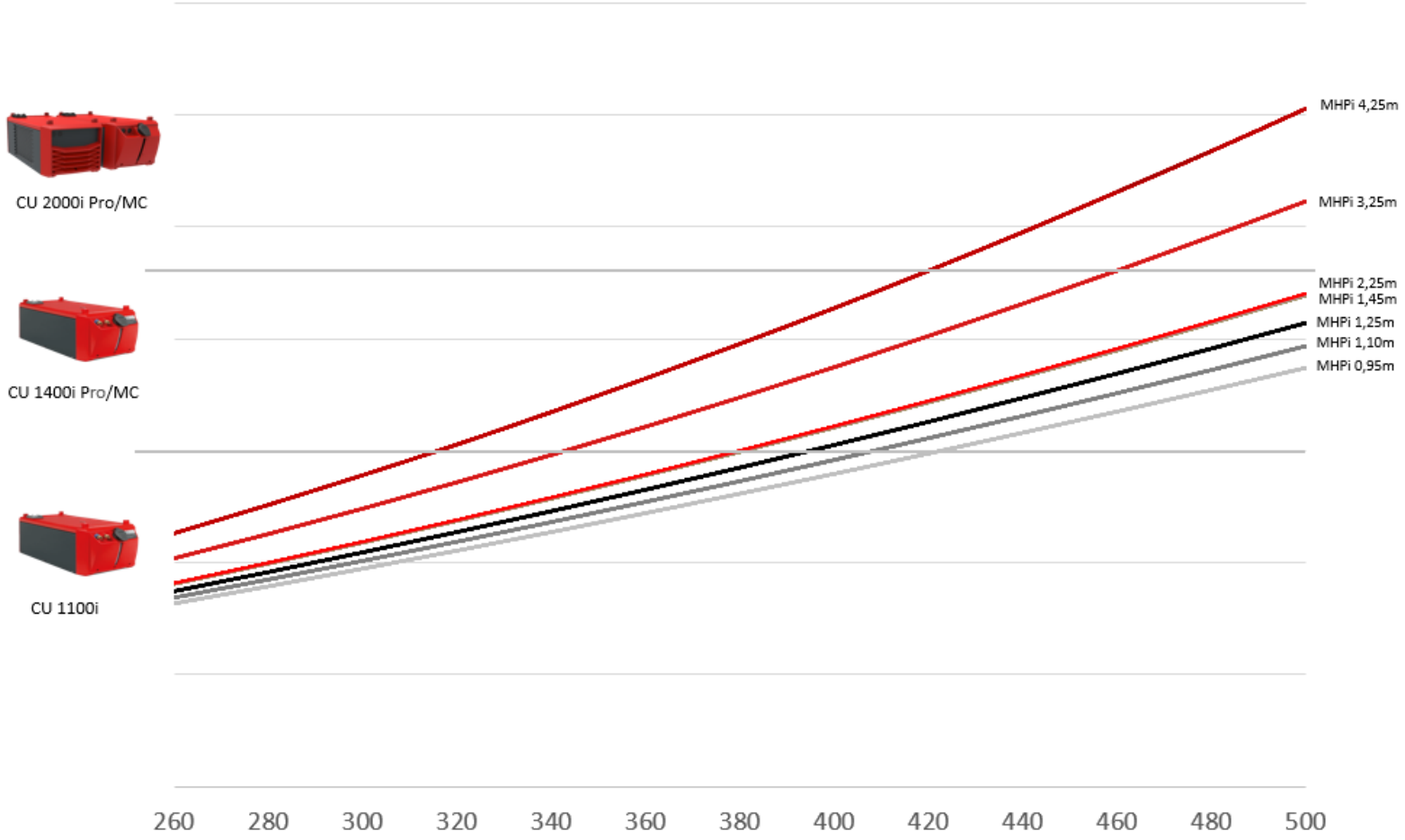
REEL WIRE FEEDER WITH WIRE DRUM



Maximum wire feed distance
/ between Drive unit and wire buffer 4m
/ between wire buffer and WF Reel 6m

1. Power source TPS/i
2. Cooling unit CU
3. Connection hose pack HP
4. Splitbox SB500i R
5. WF 60i Robacta Drive CMT
6. Torch body MTB/i R
7. Torch hose pack MHP/i R
8. Ext. wire feeding hose with inner liner
9. Wire buffer
10. WF 25i Reel 4R / WF30i Reel 2R
11. SpeedNet Cable CON

Cooling capacity TPS/i Robotics



40°C

1l / min.

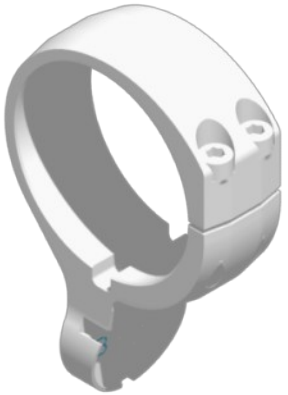
For Push systems CU 1400i Pro/MC or CU 2000i Pro/MC is recommended
For PushPull Systems use only CU 1400i Pro/MC or CU 2000i Pro/MC

Crashbox, holding clamps and robot flanges

Components conventional systems

for all conventional systems the following setup is valid :

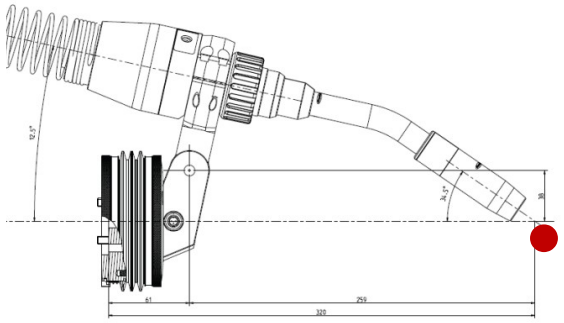
Robot flange → CrashBox or CrashBox Dummy → Indexdisk → Holding clamp suitable for Push and PushPull



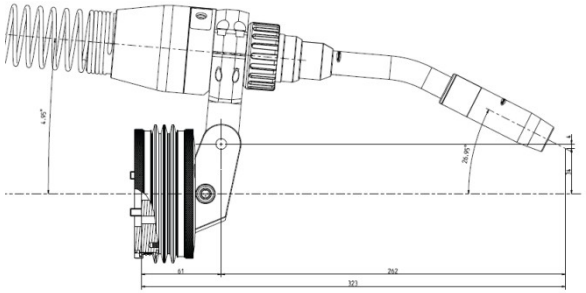
Option:
Holding clamp extension

TCP positions 22° torch body

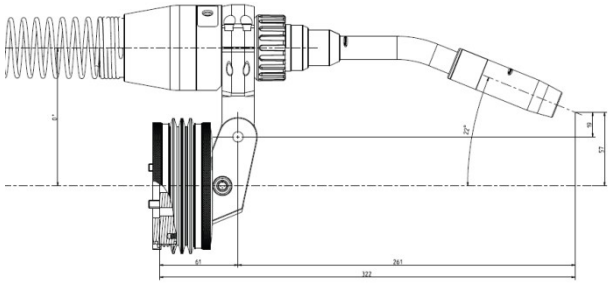
with indexdisc 22°



with indexdisc 36°

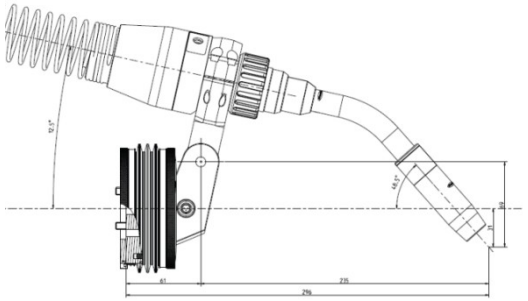


With indexdisc 45°

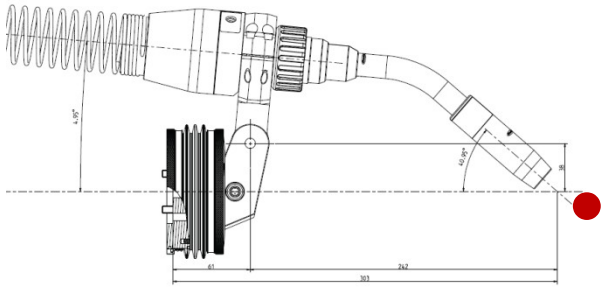


TCP positions 36° torch body

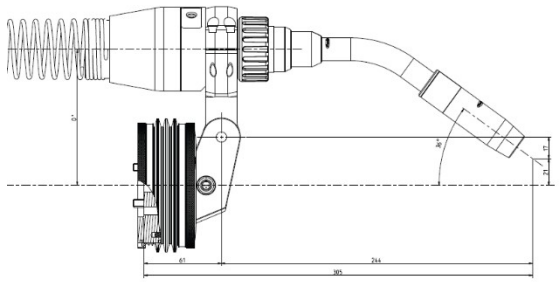
with indexdisc 22° torch body



with indexdisc 36°



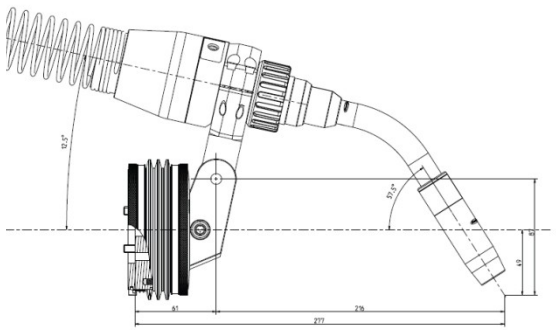
with indexdisc 45°



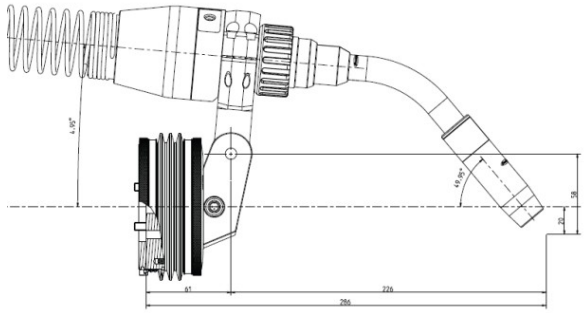
- TCP is in the 6th axis

TCP positions 45° torch body

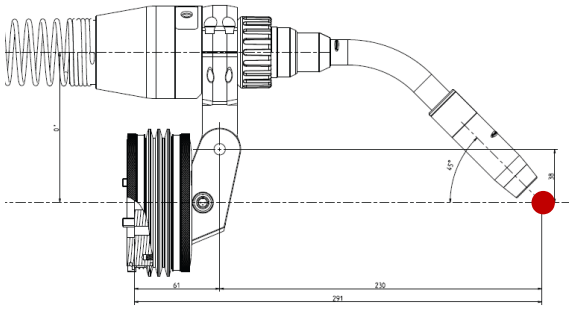
with indexdisc 22°



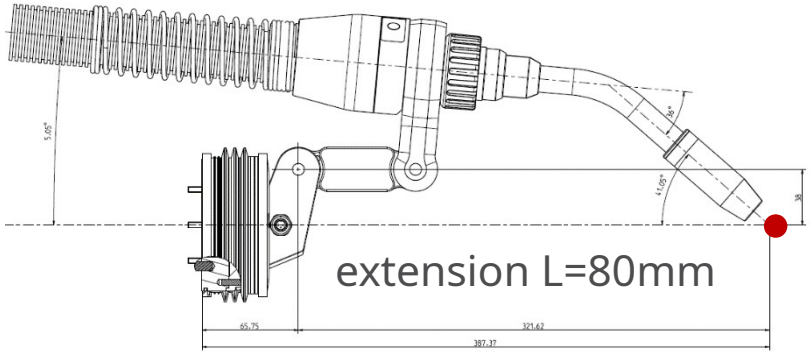
with indexdisc 36°

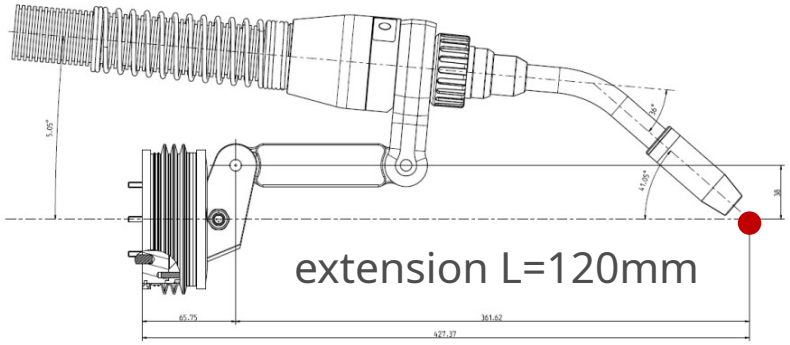


with indexdisc 45°



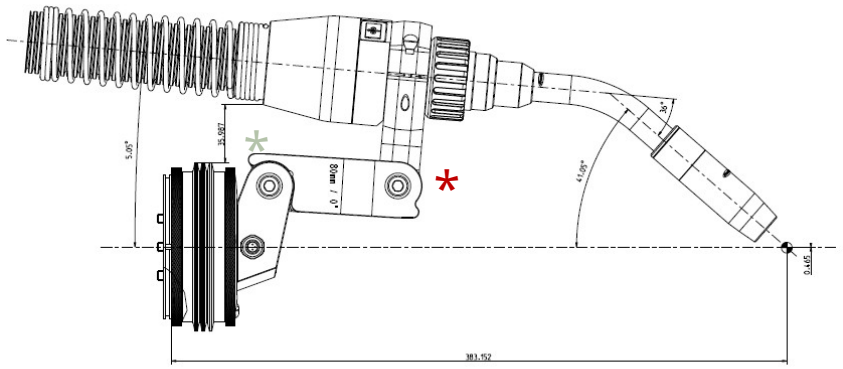
TCP position with extension



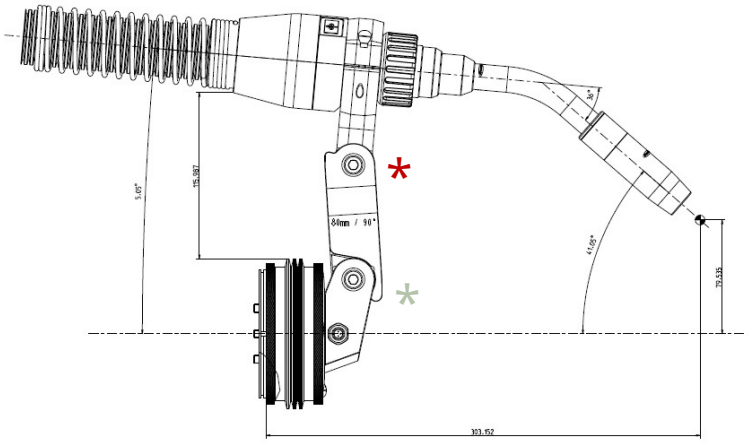


- TCP is in the 6th axis

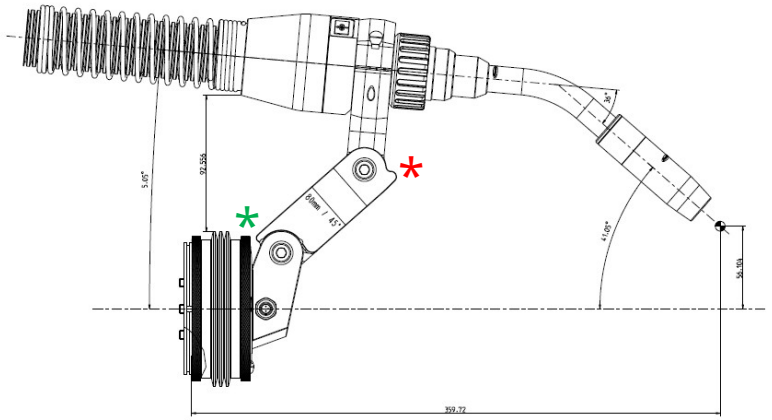
TCP positions with clamp lengthening



with 44,0350,3729 clamp-lengthening/i 80mm or alternatively
with 44,0350,3730 clamp-lengthening/i 120mm



with 44,0350,3994 clamp-lengthening/i 80mm / 90°



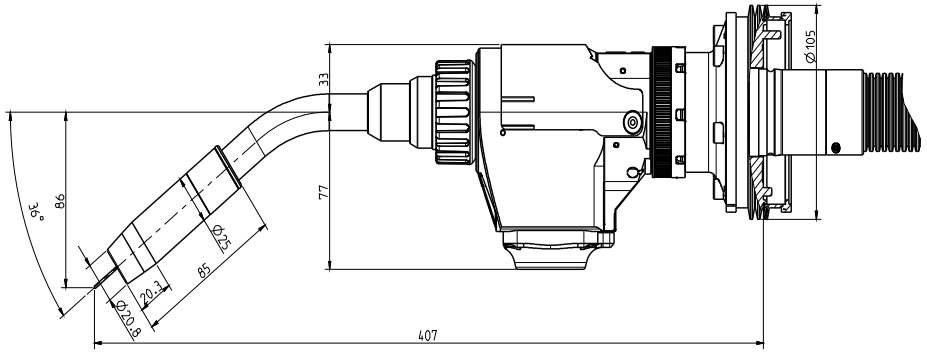
with 44,0350,3993 clamp-lengthening/i 80mm / 45° or alternatively
with 44,0350,3995 clamp-lengthening/i 120mm / 45

* 45° Index disc is included as standard
* Index disc adapted to torch body angle (order separately)

Overview Crashboxes, Indexdisc Drive, Holding clamp

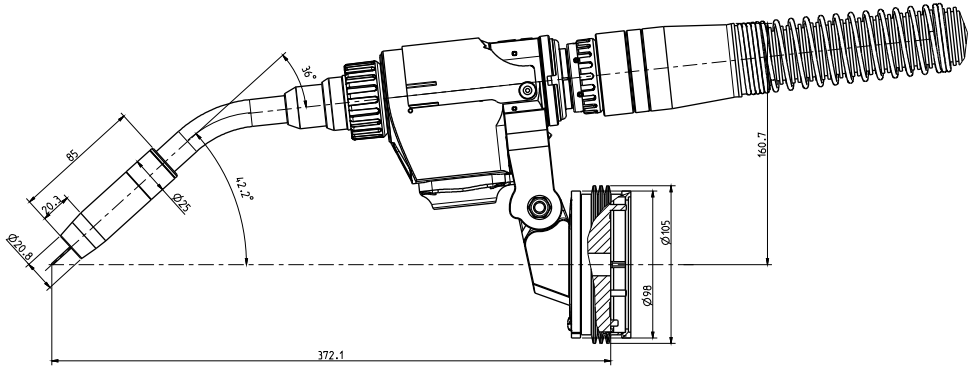
PAP:

- 44,0350,3379 Crashbox Drive/i PAP XL
- 44,0350,3754 Crashbox Drive/i PAP XXL *
- 44,0350,3755 Crashbox Drive/i PAP Dummy



Conventional:

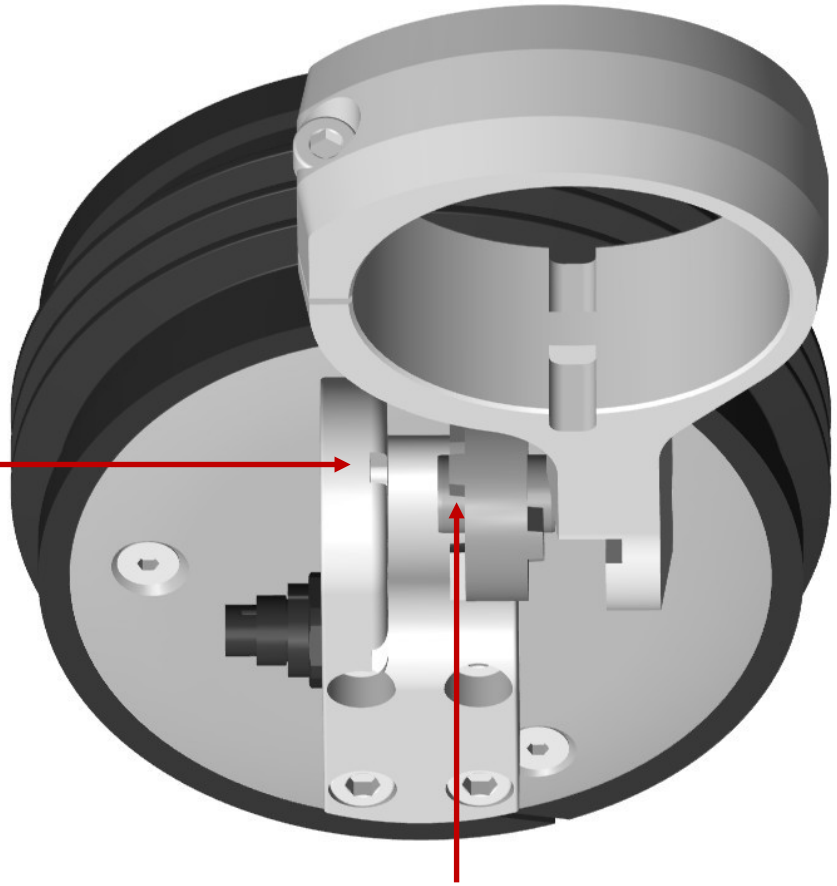
- 44,0350,3760 Crashbox/i XL
- 44,0350,3380 Crashbox/i XXL *
- 44,0350,3752 Crashbox/i Dummy
- 42,0001,4879 Indexdisc 22° TPS/i RD
- 42,0001,4877 Indexdisc 36° TPS/i RD
- 42,0001,4878 Indexdisc 45° TPS/i RD
- 42,0201,4777 Holding clamp



* For long torch bodies or in combination with holding clamp extensions

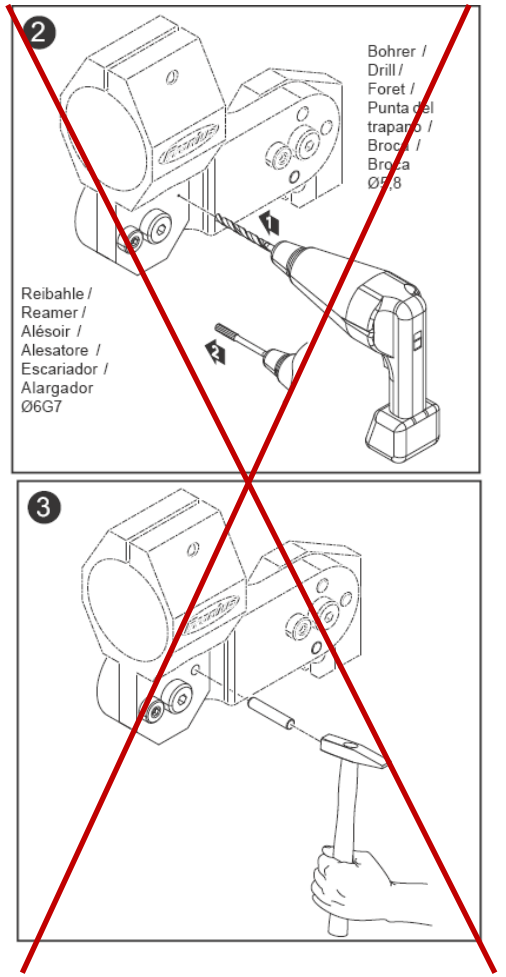
Fixation with index disc due to keying

Zylindrical on Crashbox mounting and holding clamp



5° conical on index disc

Drilling and mounting a dowel pin is not necessary any more



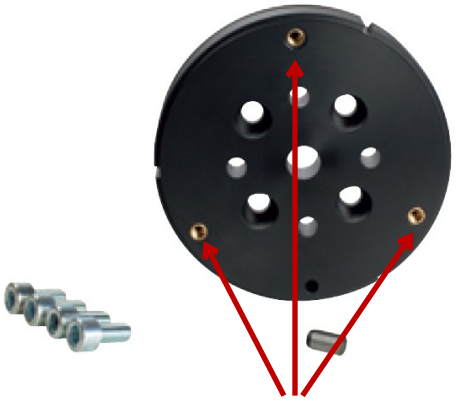
Robot flanges

- Robot flanges available for all well-established robot types
- Material: synthetic material of high quality

  - **Description:** Example RFP i 56 PAP 8M4 62
    - RFP Robot flange plastic
    - i intelligent Revolution
    - 56 Bolt circle diameter of the screw bores
    - PAP PAP or conventional (no description for conventional)
    - 8M4 8 pc M4 screws
    - 62 diameter on robot side, where the flange is centered
- All conventional Crashboxes can be mounted on PAP flanges
- So conventional systems can be installed on PAP robots

PAP flange

Conventional flange



Brass sleeves for fixing

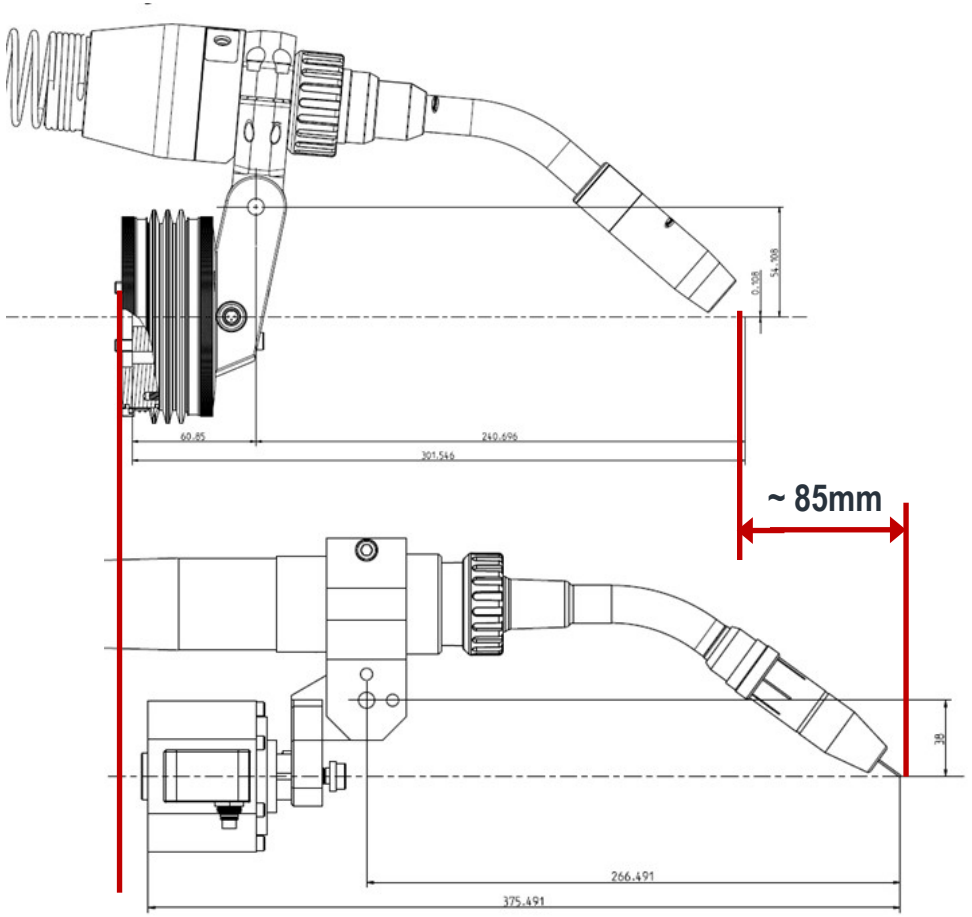
Magnetic crashbox

- New magnetic Crashboxes for conventional and PAP
- Collision box is equipped with **magnets** (instead of springs), which are responsible for the release torque.
- Smaller ergonomic design (shorter assembly time, smaller interference contour at the 6th axes)
- Weight approx. 0,7kg
- Protection class: IP 65
- Types with different release forces:
  - L (for standard configurations)
  - XL (for longer torch bodies, Robacta Drive)
  - XXL (for Robacta Drive with long torch body)

conventional

PAP

Length difference TCP TPS - TPS/i conventional



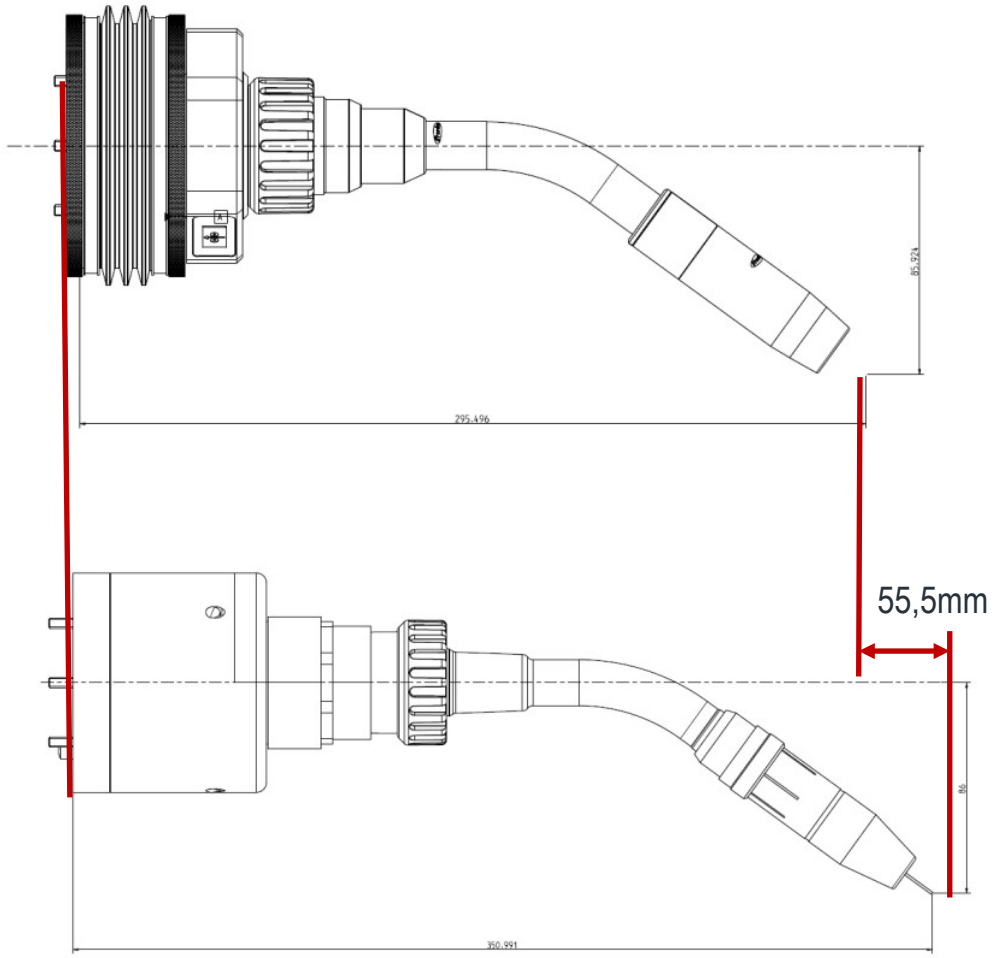
TPS/i System:

- TCP is always in the 6th axis with standard components (e.g. 36° Indexdisc + 36° torch body)
- Distance robot flange – TCP: 300mm
- No drilling of the holding clamp necessary

TPS System:

- TCP only with 36° torch body and standard holding clamp in the 6th axis
- Distance robot flange – TCP: 385mm
- Drilling of the holding clamp necessary

Length difference TCP TPS - TPS/i PAP



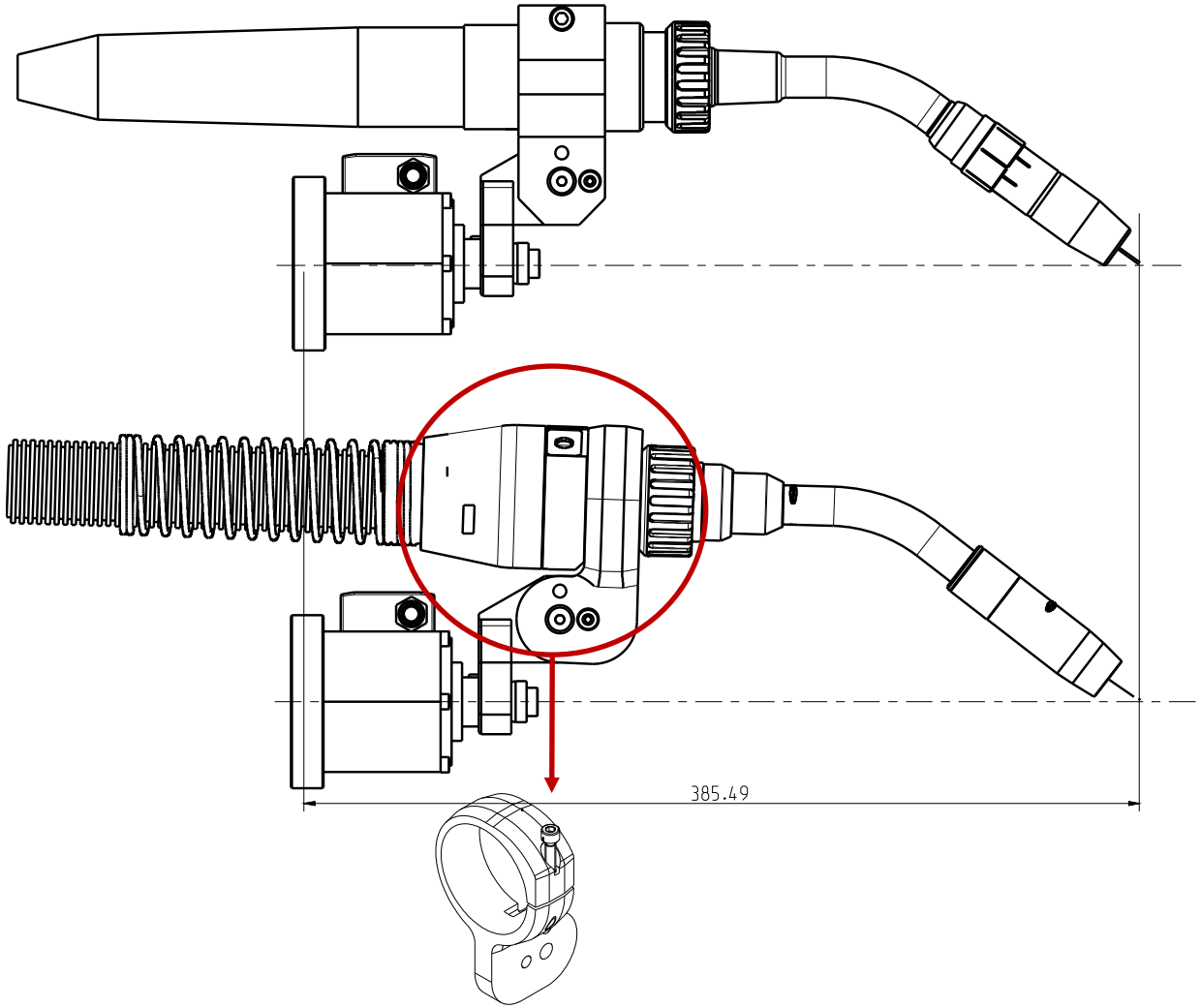
TPS/i System:

- Simple and toolless mounting of the hose pack
- Distance robot flange – TCP: 295,5mm

TPS System:

- Distance robot flange – TCP: 351mm

Same TCP TPS and TPS/i torch system conventional



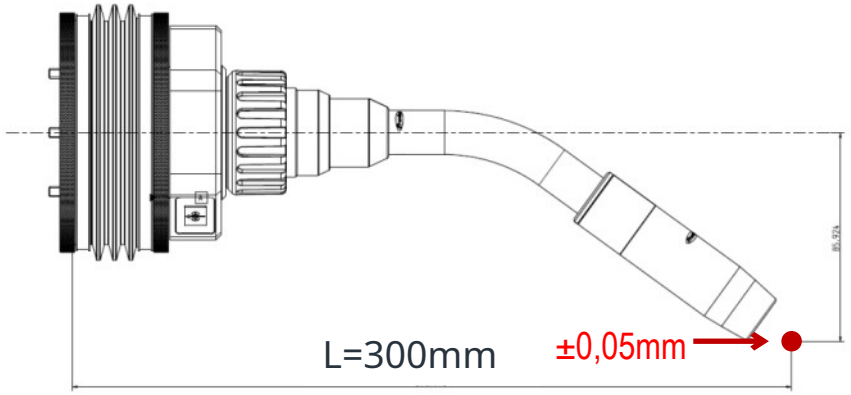
Configuration TPS

Configuration TPS/i incl.
holding clamp

Holding clamp 44,0350,3588

Position repeatability & max. excursion

- Position repeatability:



- Position repeatability of the TCP at 300mm distance from robot flange (36° standard torch body with PAP system): **±0,05mm**

- Max. excursion:

- Crashbox releases at 2,5mm TCP transfer (=0,5°)
- Max. excursion: approx. 100mm (=20°)

Magnetic crashbox

No more forces on torch components when Crashbox releases

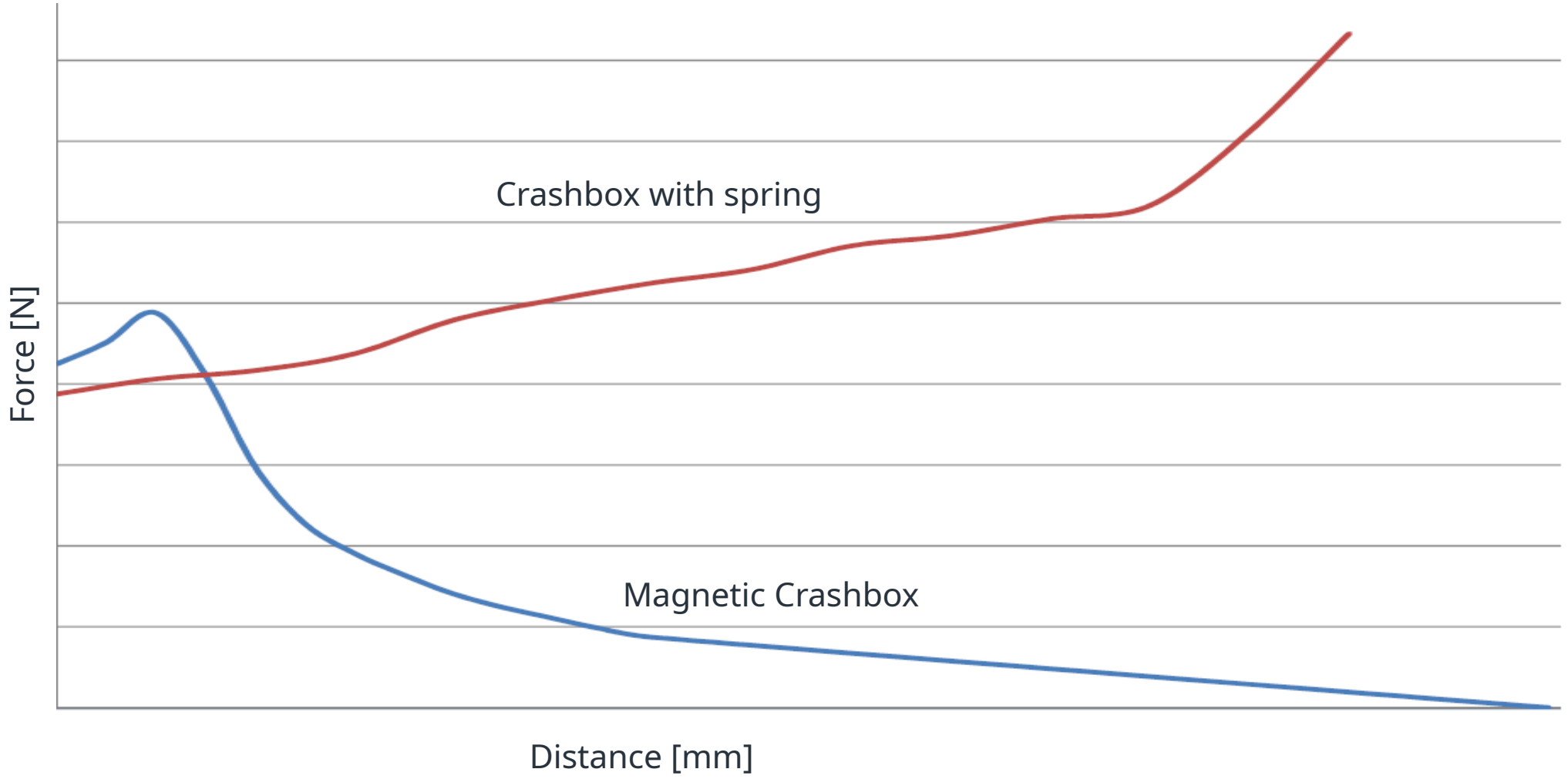
Shorter downtime in production after collision

- After a collision the fixing torque is **at 0%** (at TPC transfer more than 2,5mm)
- The magnetic crash box **can be moved out of the collision spot immediately**, because it is fully released. (Time until robot is ready for welding again is approx. **5 minutes**)

- At a spring system the fixing torque is at 200% after the collision
- Time until robot is ready for welding again is approx. **30 minutes**, because system is not released. (move robot out of collision, check and correct welding torch, check TCP)

- Costs robot per minute: approx. € 20,- → **Saving per collision: approx. € 500,-**

Force comparison crashbox technologies



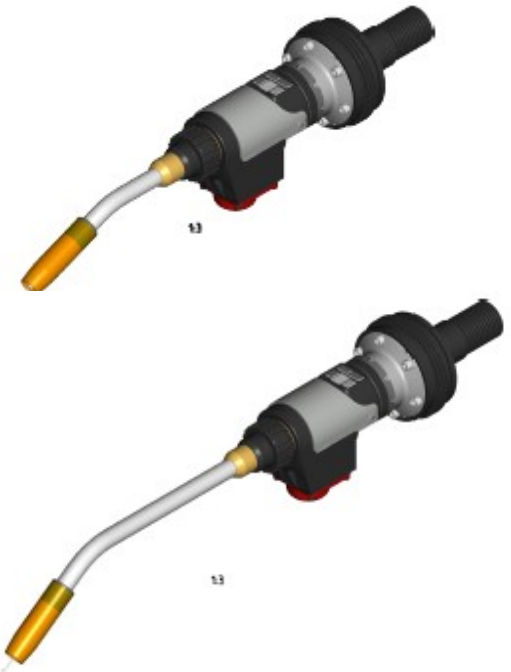
Crashbox size – PAP Push

	Crashbox L	Crashbox XL
Push Short torch body	X	
Push Long torch body		X

When using TX /i or WireBrake, a stronger magnetic collision box must be used.

Crashbox size – PAP PushPull

	Crashbox XL	Crashbox XXL
RD / RD CMT Short torch body	X	
RD / RD CMT Long torch body		X



When using TX /i or WireBrake, a stronger magnetic collision box must be used.

Crashbox size – Conv Push

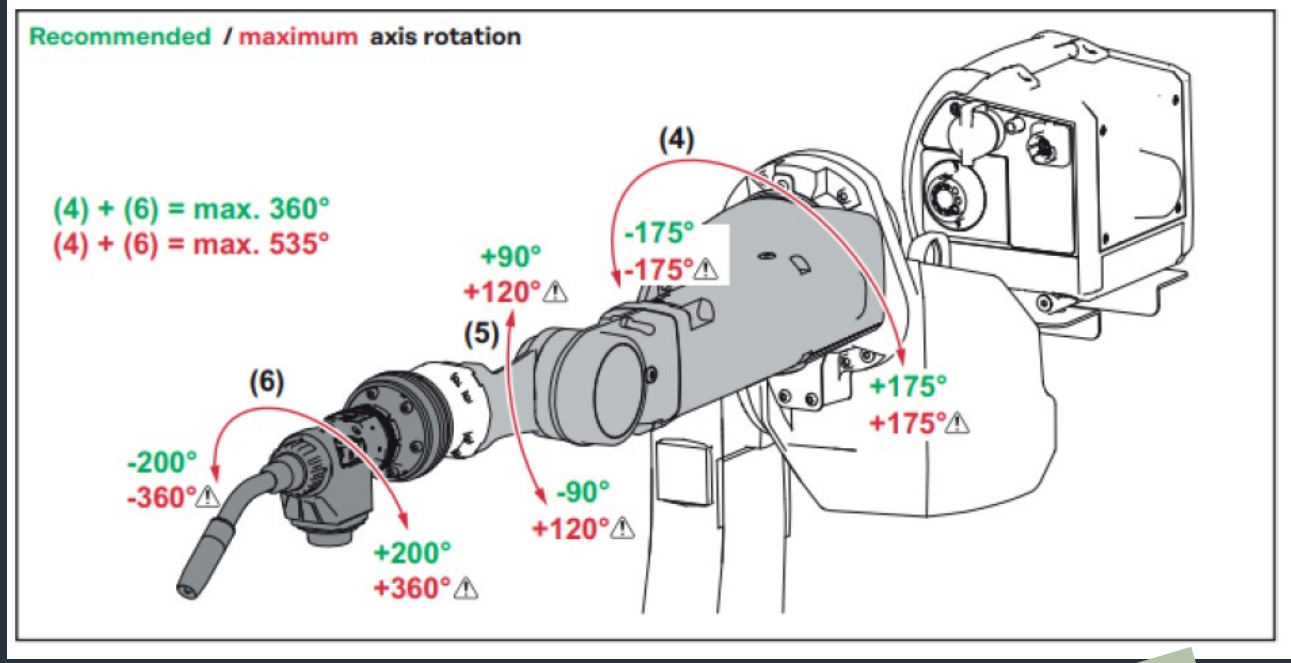
	Crashbox L	Crashbox XL	Crashbox XXL
Push Short torch body	X		
Push Long torch body or extension		X	
Push Long torch body and extension		X Depends on robot speed	X

When using TX /i or WireBrake, a stronger magnetic collision box must be used.

Crashbox size – Conv PushPull

	Crashbox XL	Crashbox XXL
RD / CMT Short torch body	X	
RD / CMT Long torch body or extension		X
RD / CMT Long torch body and extension		XXL oder Dummy Depends on robot speed

When using TX /i or WireBrake, a stronger magnetic collision box must be used.



Axis rotation and lifetim
the PAP torch hosepack

For internal communication only!
From June 2026 we will officially market the topic!

Introduction

- The lifetime of the PAP welding torch hosepack is heavily dependent on the axis rotation in the 5th and 6th robot axis, in addition to the environmental and operating conditions.

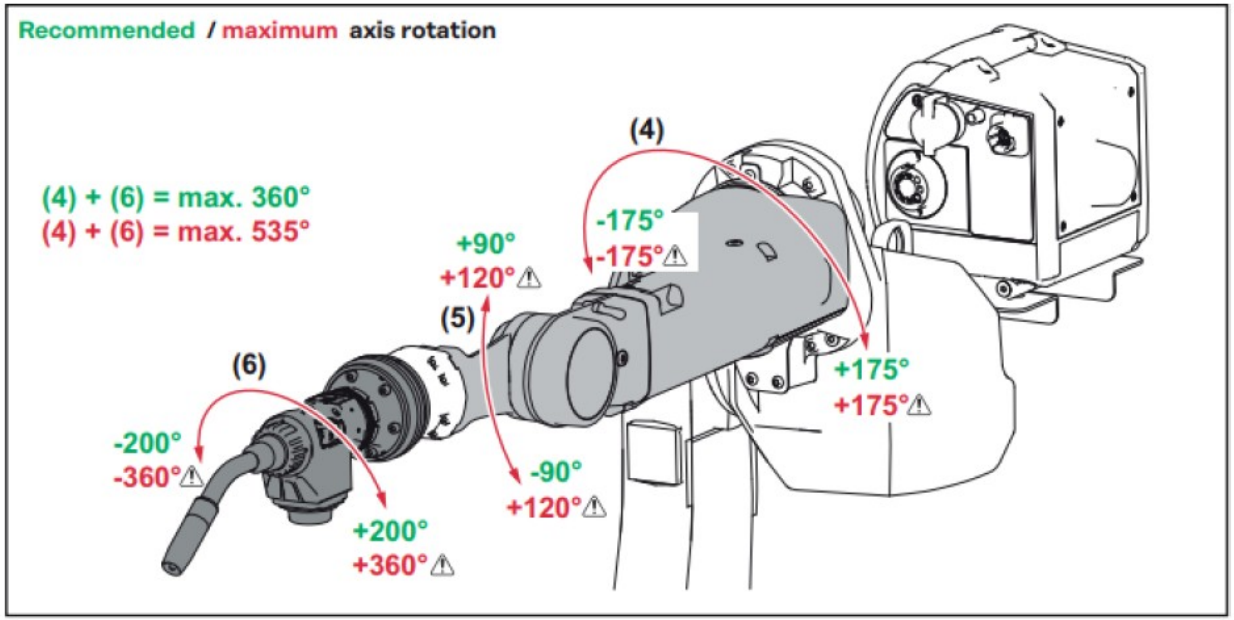
- The PAP welding torch hose pack achieves its optimum lifetime during operation within the **recommended** axis rotations.
- Any axis rotation beyond these limits accelerates wear and thus reduces the lifetime of the PAP welding torch hose pack.

- The recommended and maximum values can also be found in the TPS/i Robotics Push & Push-Pull system instructions.

Axis rotation and lifetime of the PAP torch hosepack

- **Recommended axis rotation:**
- Operation within the recommended axis rotations → optimal service life of the hose package.

- **Maximum axis rotation:**
- Any axis rotation that exceeds these limits accelerates wear and reduces the service life of the PAP welding torch hose package.

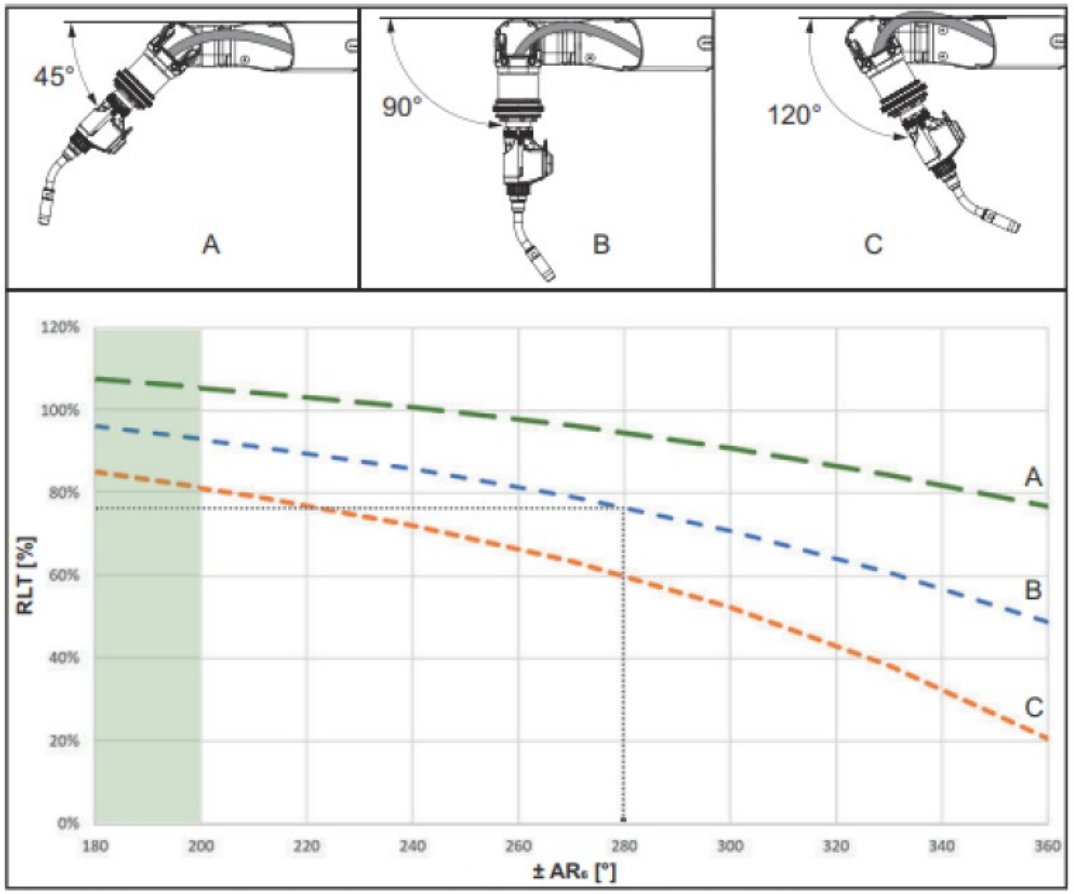


⚠ Maximum axis rotations reduce the hosepack service life.

Calculation of the expected lifetime of the hosepack

- The picture on the right is intended to show, that the greater the angle of the 5th axis is, the shorter will be the lifetime.
- The green line shows the lifetime at an angle of 45° at the 5th axis
- The blue line shows the lifetime at an angle of 90° at the 5th axis
- The orange line shows the lifetime at an angle of 120° at the 5th axis

IMPORTANT! The values shown in the diagram are guide values that may vary depending on the environmental and operating conditions. The values were determined with an axis rotation of 0° at the 4th robot axis.



RLT = relative service life [%], ± AR_6 = axis rotation in the sixth robot axis [°]

= recommended axis rotation in the sixth robot axis

Options and accessories

OPT/i WB MHP = Option Wire Brake

- For mechanical fixing of the wire (for touch sensing)
  - In Touch Mode the wire is fixed (at Push-Systems)
  - Exact detection of the work piece possible – precise welding position
  - TCP-displacement: 47 mm at retrofitting
- Robacta Drive has wire break function as standard
  - The fixing of the wire is done by current feed of the motor
- Option blow out has to be ordered separately

Cut

When using TX / i or WireBrake, a stronger magnetic collision box must be used.

Variants

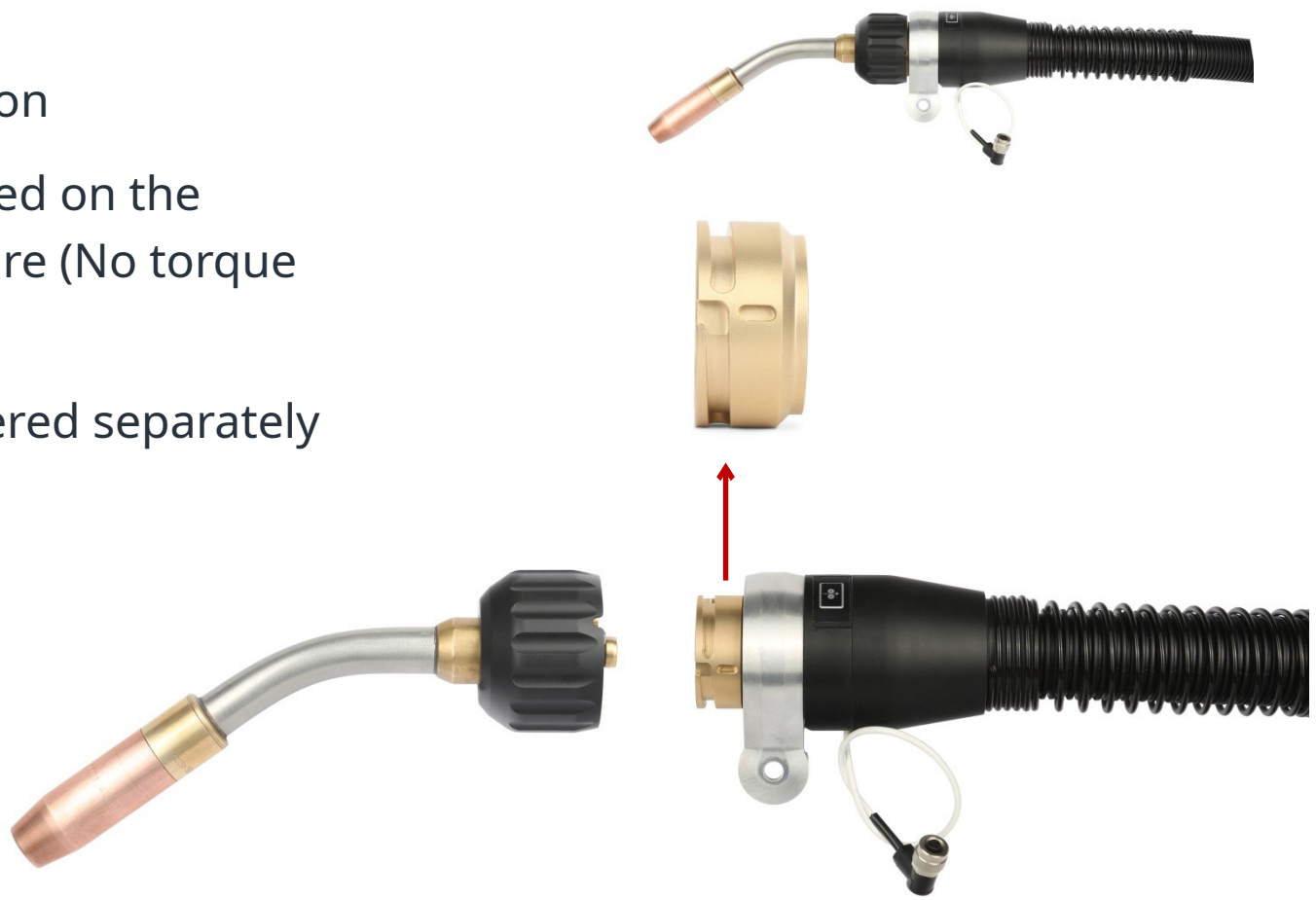
OVT version ... ,630

TX version ... ,636

TXM version ... ,637

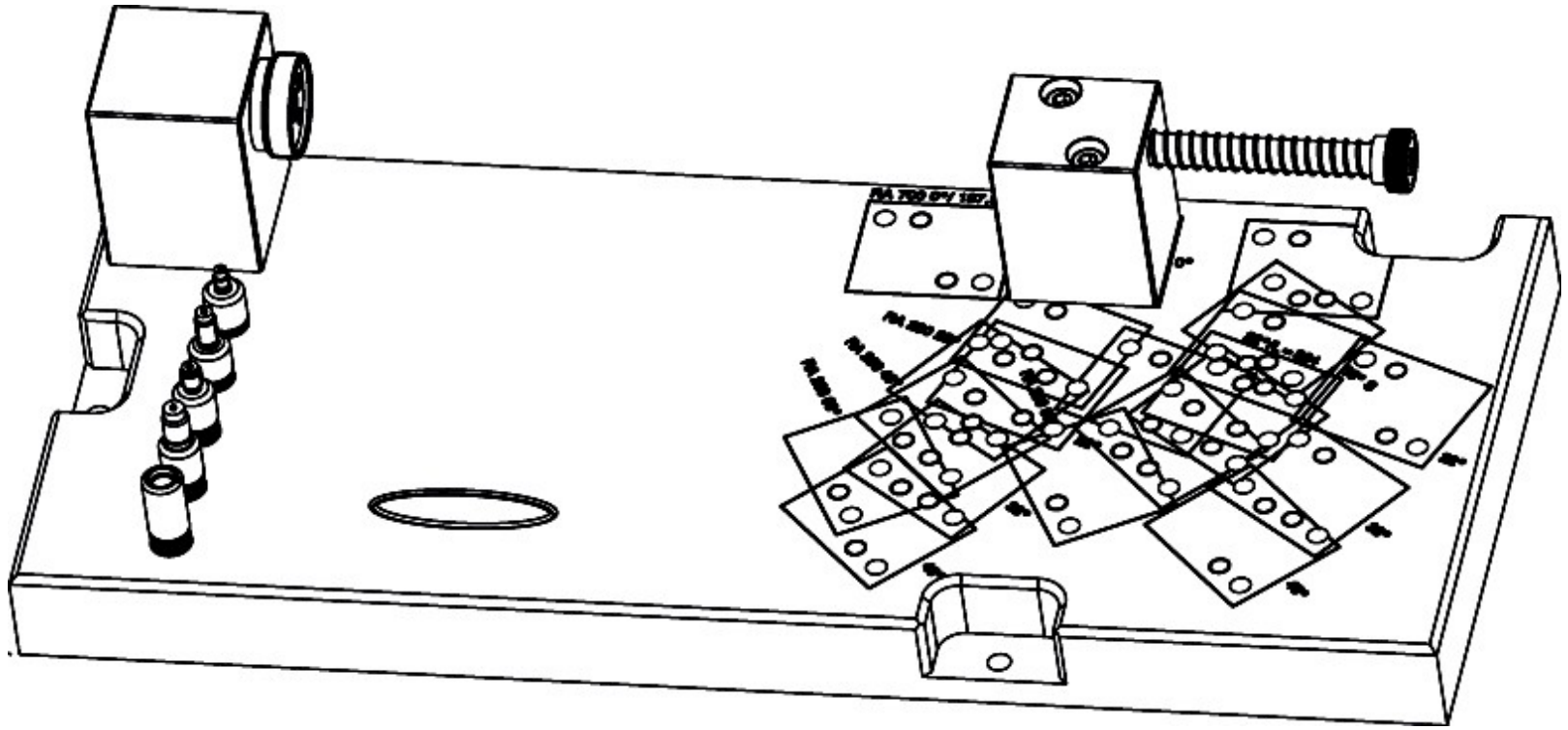
Torch body exchange system Robacta TXM

- Fast, manual change of the torch body
- Fixing of the torch body with 120° rotation
- It ensures, that the torch body is mounted on the coupling with the correct contact pressure (No torque wrench necessary)
- TXM hose pack mounting has to be ordered separately



Examination and correction device

– One device for gas- and watercooled torch bodies



TCP test tips

- **MTB 250i G / MTB 250i W / MTB 330i W**: 42,0001,4275 – test tip TCP M6/24 SO13

- **MTB 320i G / MTB 400i G / MTB 400i W**: 42,0001,4277 – test tip TCP M8x1,5 SO15

- **MTB 500i W / MTB 700i W**: 42,0001,4278 – test tip TCP M8x1,5 SO17

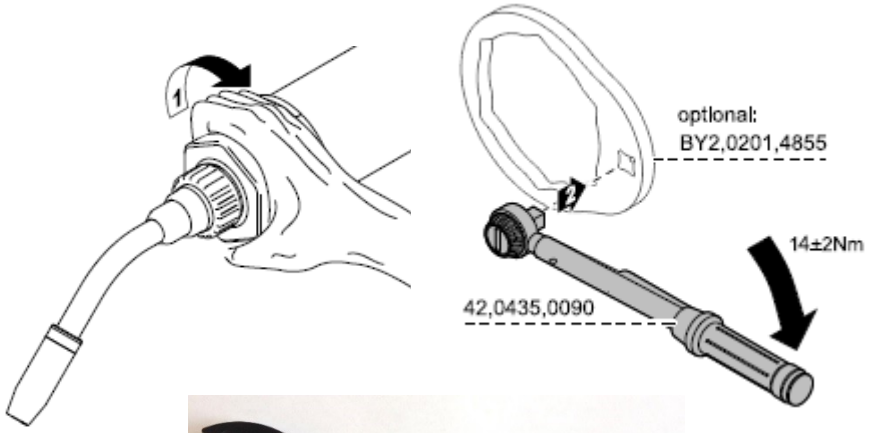
Tools

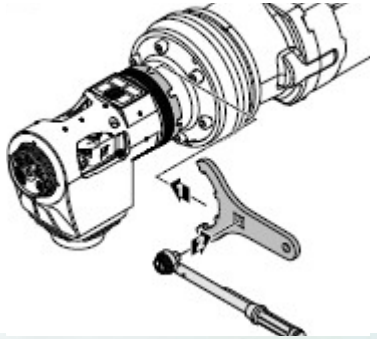
– For fixing the nut of the PAP hose pack:
  – BY2,0201,4855 installation wrench PAP

– For fixing the nut of the torch body:
  – 45,0200,1404 Key for Robacta union nut

Assembly tool Robacta Drive:
  – BY2,0201,4896 Assembly tool

– Torque key
  – 42,0435,0090 Torque key 5-50NM

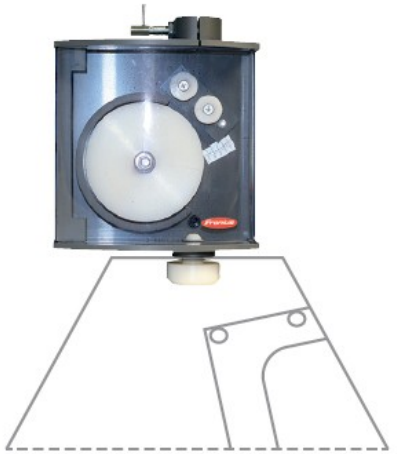


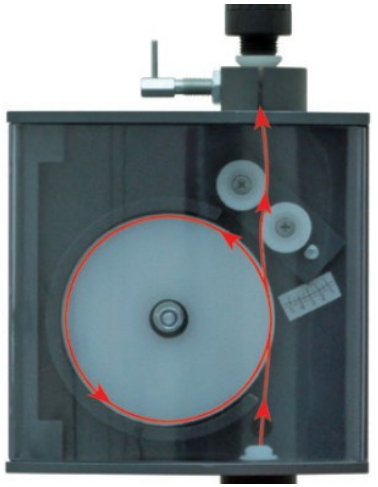


Pulley for aluminum wires

- Wire comes with a sinusoidal deformation from the barrel
- This leads to an inaccurate welding position
- This is problematic especially with large wire diameters and small seam cross-sections (eg fillet a4 with 1.6 mm wire diameter).
- Deflection pulley directs the wire electrode in a defined direction
- With the pulley, setting the exact welding position is possible
- Knot formation from the wire is prevented
- The wire feeding hose is connected via QuickConnect
- Optionally a wire end sensor can be mounted

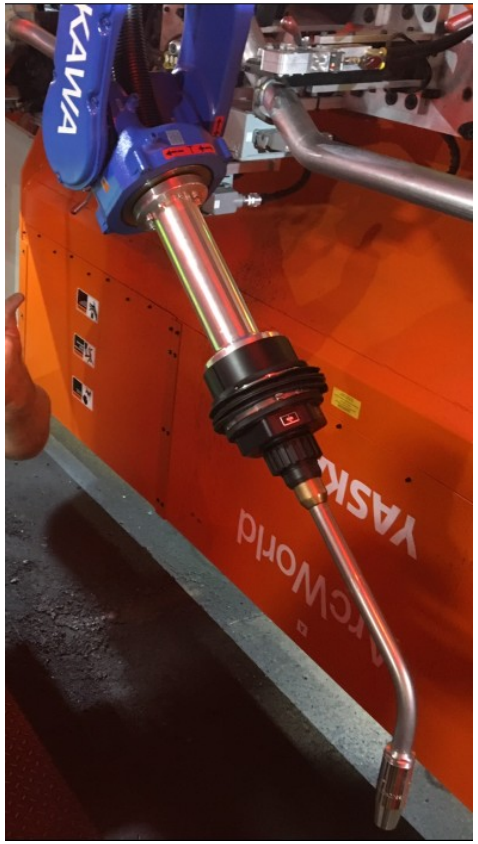
- Article number: 44,0450,1037 Pulley





Axis extension PAP

- Extension of 6th axis of PAP robots, if needed for accessibility
- Can be used instead of special torch body lengths.
- Advantage: using of Fronius standard torch bodies is possible
- For Projects from approximately 10 systems also available for other robots and lengths.
- Attention! Hose pack length has to be adapted.
- Available versions:
- 42,0200,0099 Axis-Ext. 72mm / 56 PAP 8M4
- 42,0200,0098 Axis-Ext. 194mm / 56 PAP 8M4
- 42,1000,0165 Axis-Ext 55,5mm / 56 PAP 6M4



for following robot types::

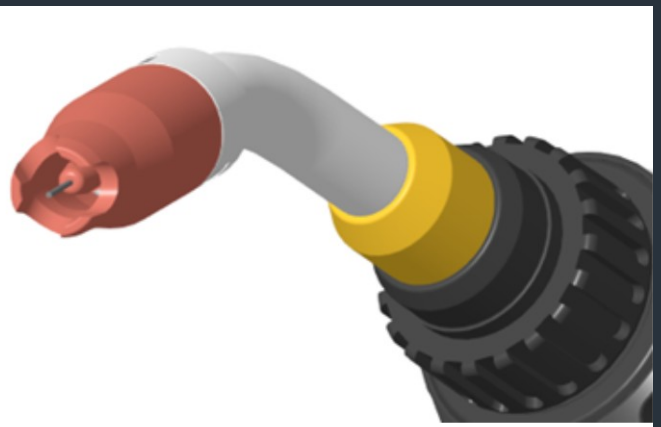
Fanuc AM 100iC / 6L/7L/8L Fanuc M710/12L Fanuc AM 120iC / 10L / 12L

Yaskawa MA 1440 Yaskawa MA 2010 Yaskawa MH 24

Holder for seam detection systems for TPS/i

- Holder for seam detection systems, cameras, etc.
- Holder is mounted instead of the black nut to fix the torch body
- TCP remains the same
- Seam detection system or camera is protected from the Crashbox
- Position of assembled system is reproducible (with dowel pin positioned)
- System can be mounted in 6 different places
- 3 surfaces each with 4 M4 tapped holes are standard
- 3 surfaces are free
- Part number: 44,0350,0080 OPT/i Camera holder

Spot-Welding-Nozzle (44,0350,2158)



- Spot-welding gas nozzle is suitable for MTB320i G R / MTB400i G R and for two applications: Spot welding and Arc welding.
- Enormous cost savings possible, as no second robot with spot-welding gun needs to be used.
- Furthermore, there is no need for additional personnel to operate and maintain the spot welding system.

Exento Robotics

Exento fume extraction set for robot welding torches

- **Direct extraction** of the welding fumes **at the source** is now also possible for **robot applications**.
- As with manual systems, the extraction nozzle is located **directly on the gas nozzle** and **close to the welding point**. This enables a **very good smoke capture**.
- The **special geometry of the extraction gas nozzle** ensures that the **shielding gas coverage** is still optimal even with normal gas volumes.

Exento fume extraction set for robot welding torches

- By using an extraction system directly at the welding torch, **entire operation employees are protected from the welding fumes.**

- A **smaller extraction volume reduces energy costs** compared to large hall extraction systems.

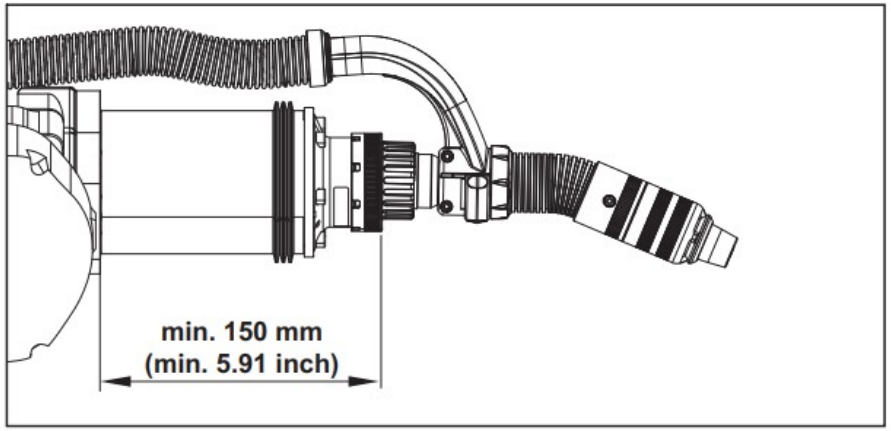
Exento fume extraction set for robot welding torches

– **Suitable for the following systems**

– Conventional systems ✓

– PAP PushPull systems ✓

– PAP Push systems: limited, check setup in advance ⚠



Exento fume extraction set for robot welding torches

- The extraction set can be easily retrofitted to existing robot torch bodies of the following types:
- MTB 320i G R, MTB 330i G R, MTB 400i G R, MTB 500S G R
- MTB 330i W R, MTB 400i W R, MTB 500i W R, MTB 700i W R

- All torch body lengths and angles, which are available with article number as standard, can be used.
- Customer-specific torch body variants must be checked in advance.

Fume extraction hose

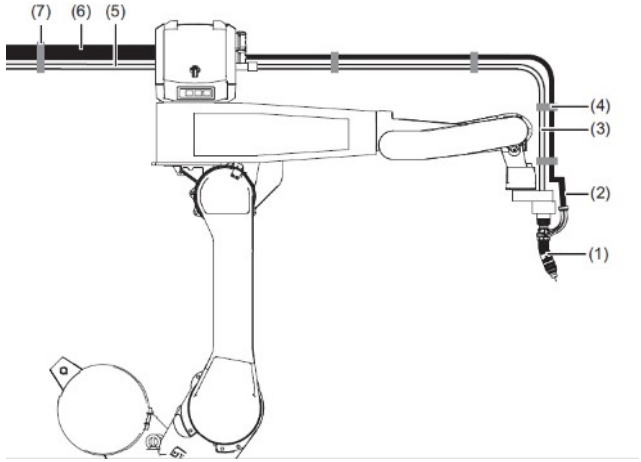
- The extraction hose is external. Also with PAP robots the extraction hose is outside of the hollow wrist.
- The separate routing of the extraction hose keeps the hose pack components clean.
- The position of the extraction hose is adjustable.

Fume extraction hose

- For the most efficient extraction performance, keep the ø25 suction hose as short as possible!

- Following extraction hoses incl. connector are included:
  - 1m extraction hose NW 25
  - 5m extraction hose NW 38

- Connection to the Exento HighVac is included in the set

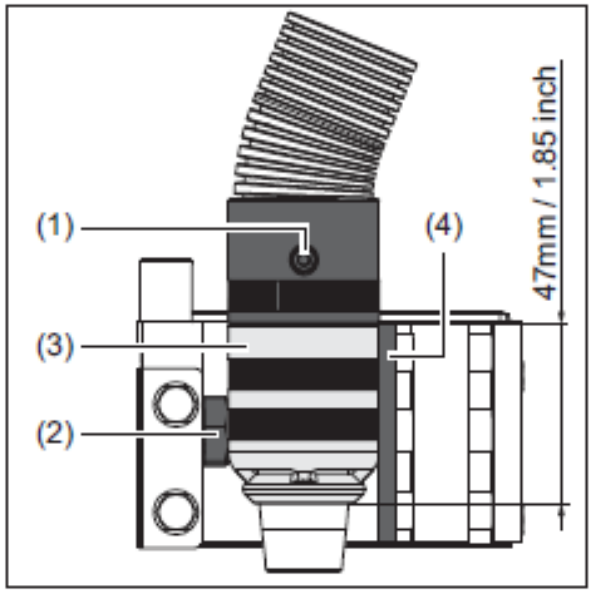


Variants

Article number	description	Suitable for following torch body type:
44,0350,0910	Exento Set R ø25/18mm	MTB 400i W R, MTB 500i W R, MTB 320i G R, MTB 400i G R
44,0350,0911	Exento Set R ø30/18mm	MTB 700i W R (NO S-Type)
44,0350,0912	Exento Set R ø25/16/18mm kurz	MTB 330i G R MTB 330i W R
44,0350,0913	Exento Set R ø27/18mm	MTB 500S G R

Torch cleaning

- Cleaning with Robacta Reamer possible.
- This requires a conversion set for the clamping jaws.
- 42,0411,0230 Conversion kit for fume extraction torch



Exento HighVac

W3 | EN ISO 21904-1 η ≥ 99% | W3

Filter quality

The extra large vertically mounted filter cartridge separates **99.9%** of the extracted **fine dust**.

Intuitive one-button operation

Easy operation of the unit even with welding gloves

Semi-automatic cleaning

The device warns when the filter is getting clogged – with the rotary/push knob the cleaning process will be started

Constant extraction rate control

Automatic regulation of the air volume flow to the set value (e.g. 80m³/h)

Perfect Match

Best performance with the Exento extraction set or Exento extraction torch

Start-Stop automatic (optional)

Saves time & energy - Extraction only during the welding process

CE, UKCA, UL/CSA, CCC (not required)

Link PowerPoint Presentation

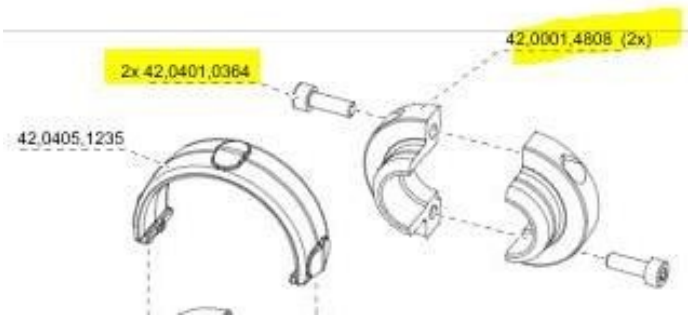
FumeEx Set Robotics for manual welding torches/ machine welding torches

– The Robotics Set can also be attached to Multilock or manual torch bodies.

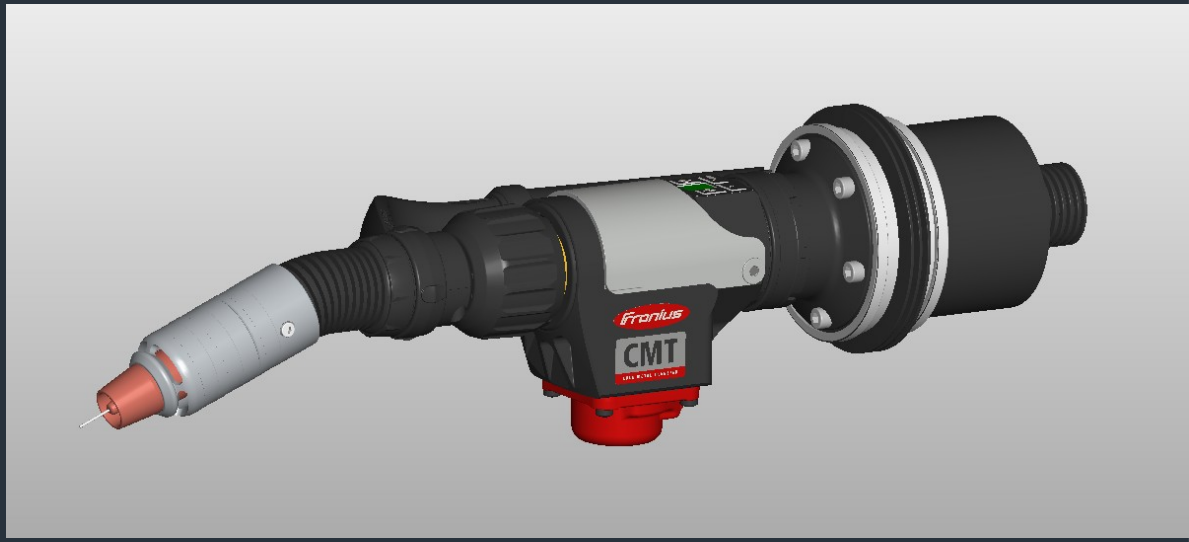
– Following parts must be ordered additionally.

– 2 Stk. 42,0001,4808

– 2 Stk. 42,0401,0364



3D data configurator



Fronius CAD-Data-Download Language: en

SELECT CATEGORY > CONFIGURATION > EXPORT DATA

System parameters

Desired configuration not found?
Then please click here.

Welding system: Robacta Drive CMT

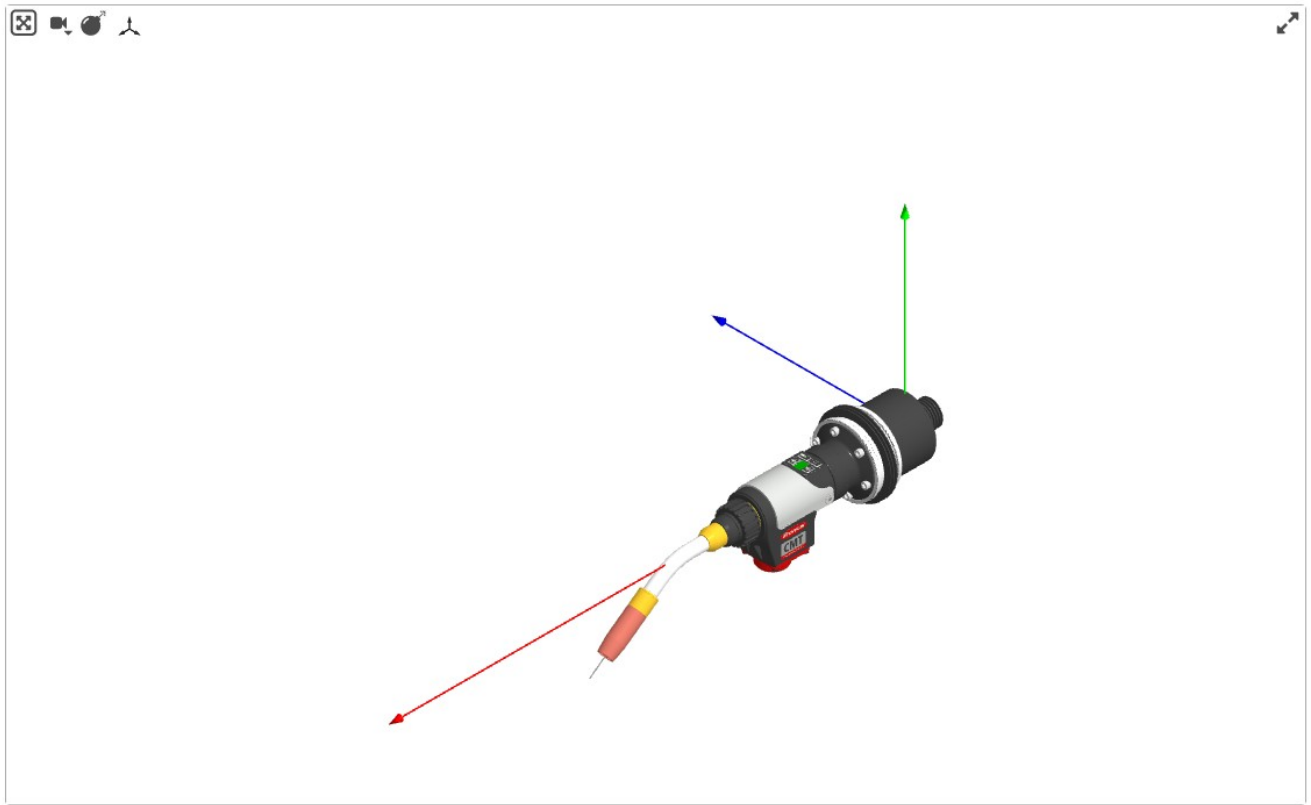
Cooling: water-cooled

Robot system: Pap

Hosepack: MHP 500i RD/W/PAP

Robot manufacturer: FANUC

Robot type: Arc Mate 100iD/8L (M-10iD/8L)



Back Next

CAD-Data-Download

Language: en

SELECT CATEGORY > CONFIGURATION > EXPORT DATA

Components

Desired configuration not found? Then please click here.

Torch body

available with FumeEx

Item number	Torch body	Current [A]	Angle [°]	L [mm]	H [mm]
*	*	*	*	*	*
44,0350,3494,630	MTB 500i W R OVT /22°/L241/H50	500	22	241	50
44,0350,3495,630	MTB 500i W R OVT /36°/L224/H86	500	36	224	86
44,0350,3496,630	MTB 500i W R OVT/45°/L209/H107	500	45	209	107
44,0350,4302,630	MTB 500i W R OVT/22°/L383/H50	500	22	383	50
44,0350,4304,630	MTB 500i W R OVT/45°/L351/H107	500	45	351	107
44,0350,4303,630	MTB 500i W R OVT/ 36°/L366H86	500	36	366	86
44,0350,4262,630	MTB 500i W R OVT/36°/L338/S-Type	500	36	338	0

Wearing part selection


with spatter guard contact tip M8x1,5


Contec

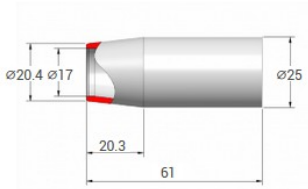

narrow gap contact tip M6

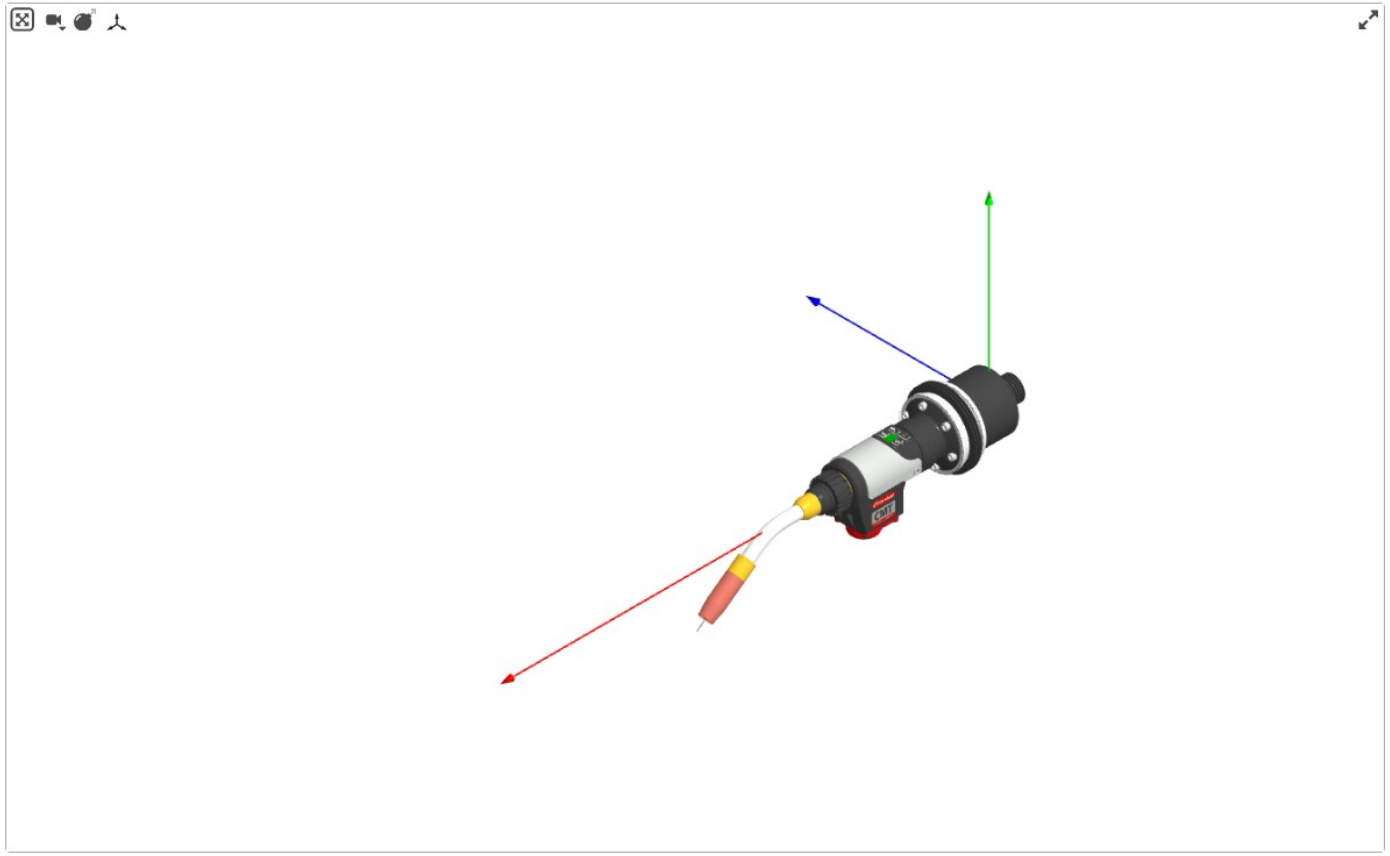

Sleeve system contact tip M8x1,5

Gas nozzle

Show only recommended gas nozzles

Item number	Description
*	*
44,0350,3935	Gas nozzle Ø15/Ø25x61 CT/H
44,0350,3936	Gas nozzle Ø17/Ø25x61 CT/H **
44,0350,1287	Gas nozzle Ø15/Ø25x63 CT/H





Back Next

CAD-Data-Download

Language: en

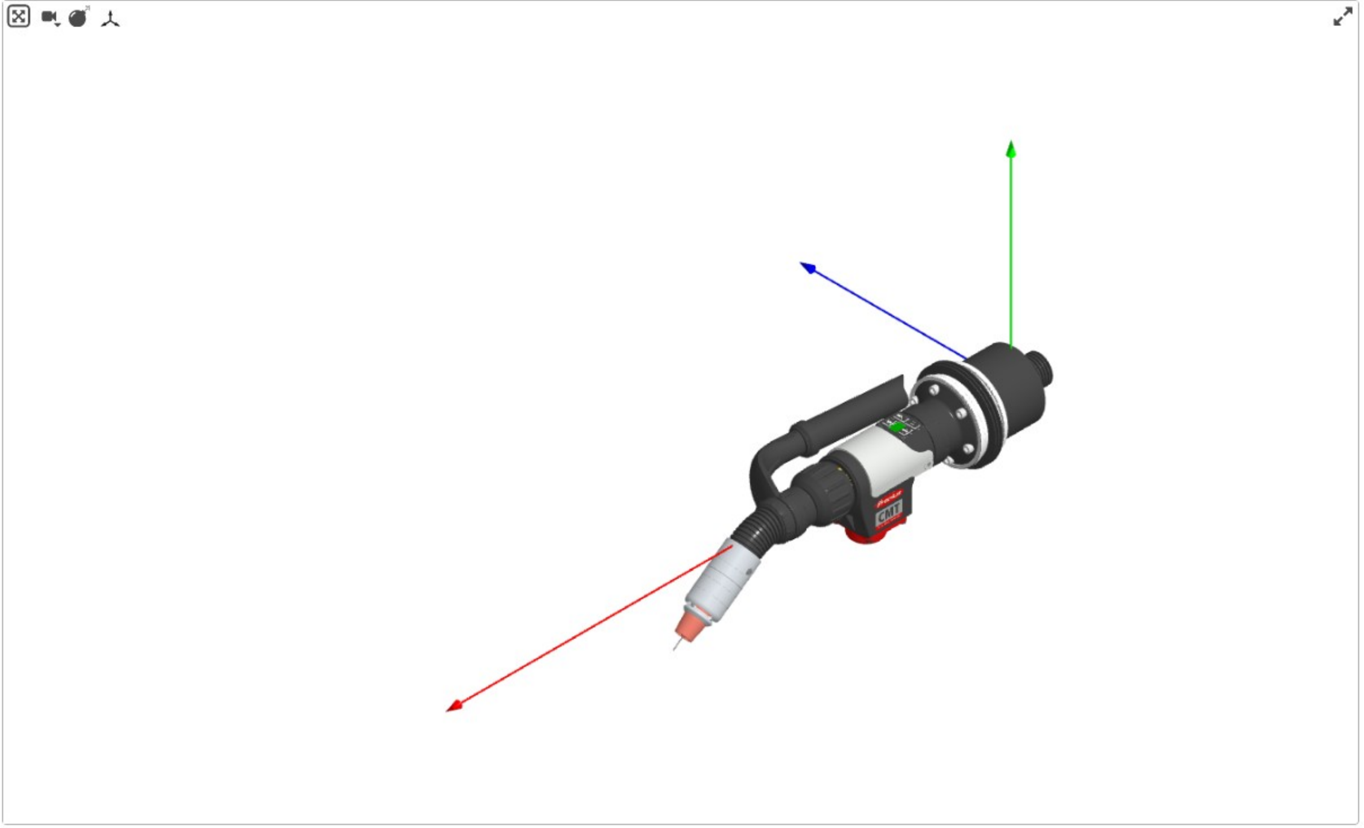
SELECT CATEGORY > CONFIGURATION > EXPORT DATA

Equipment

Desired configuration not found?
Then please click here.

Welding torch mounting: TXM - manual torch body change system

FumeEx: ☑ Yes ☐ Transparent



Back Next

CAD-Data-Download

Language: en

SELECT CATEGORY > CONFIGURATION > EXPORT DATA

Equipment

Desired configuration not found? Then please click here.

CrashBox

Show only recommended CrashBoxes

◉	44,0350,3379	CrashBox Drive /i PAP XL
○	44,0350,3755	CrashBox Drive /i PAP Dummy

Stick out: 17 mm

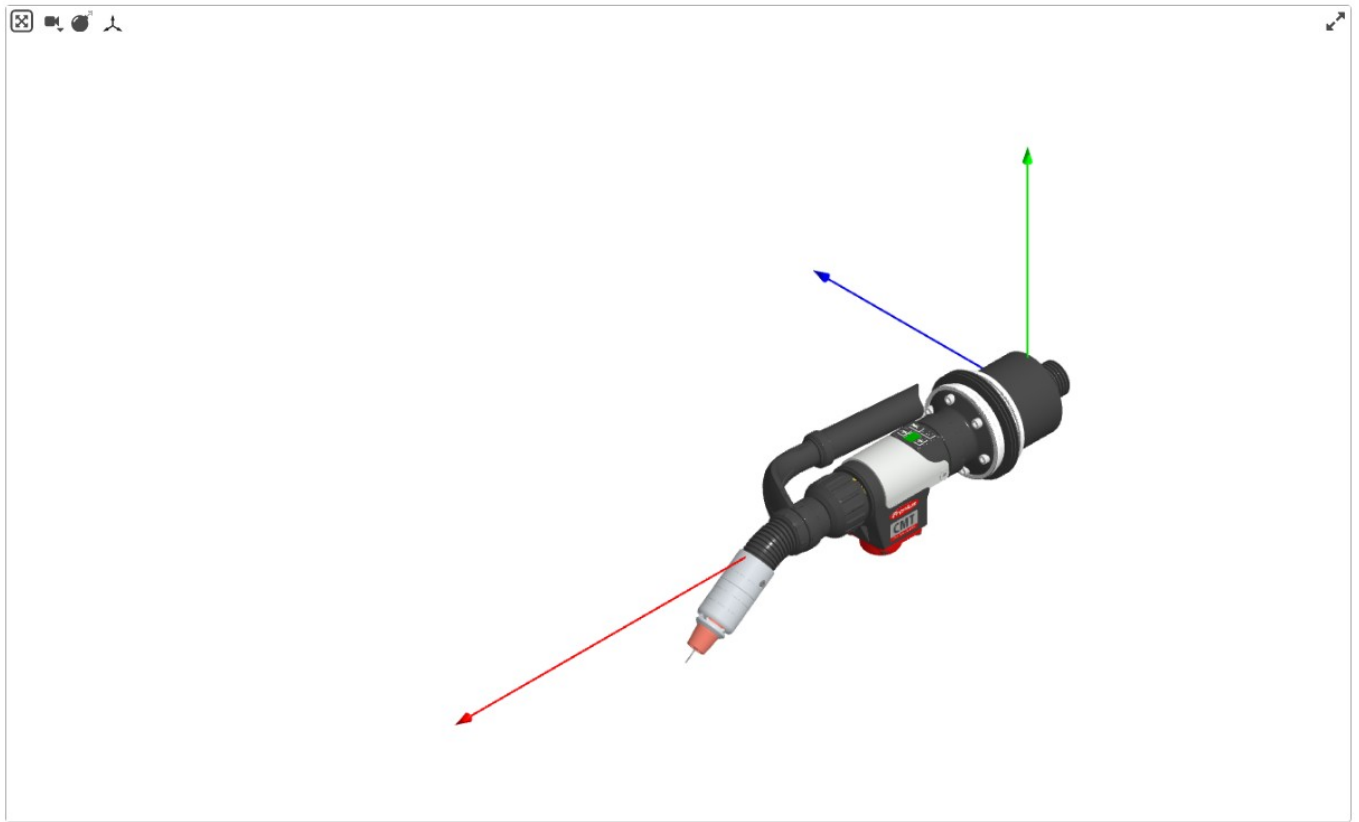
Show wire in the CAD model

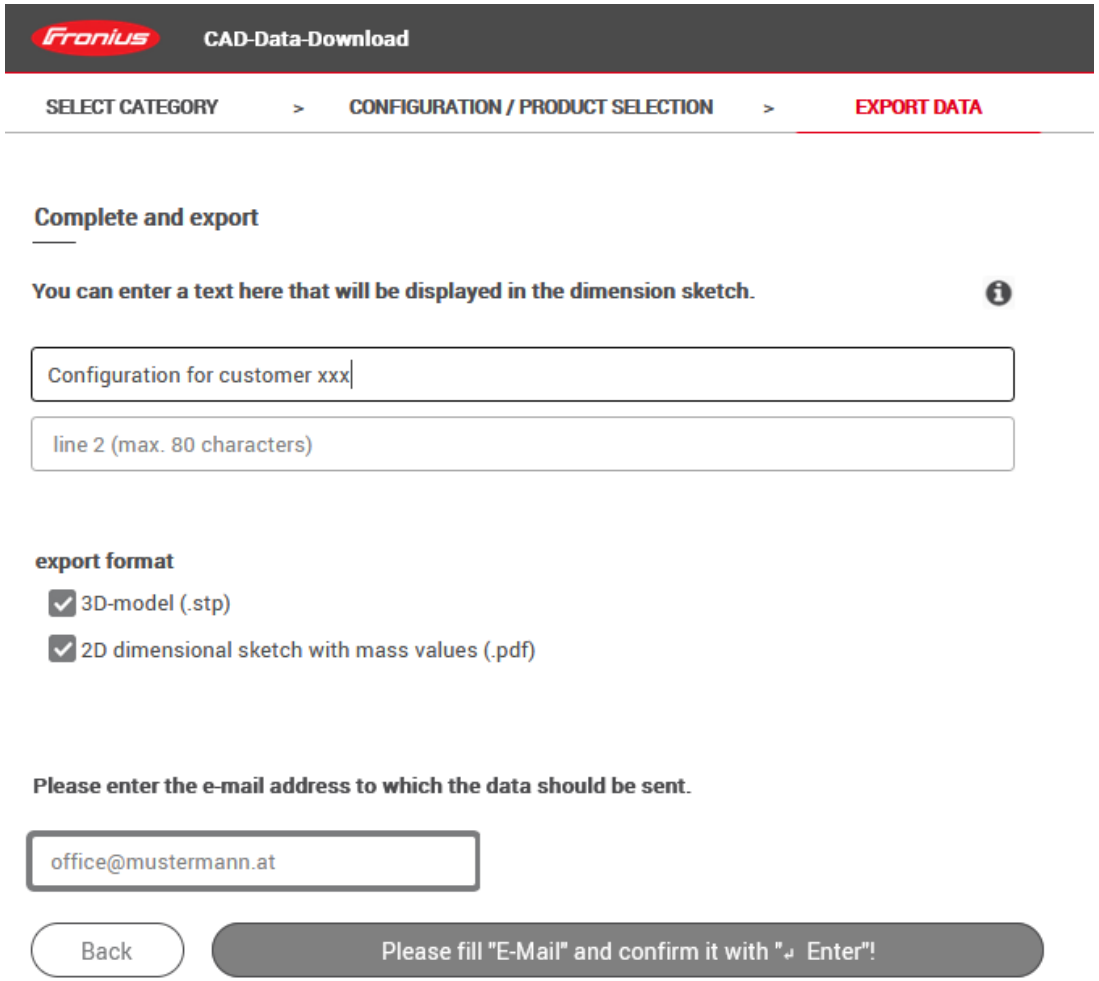
-5.0 — 0.0 — 5.0

Adjust the position of FumeEx

-180 — 90 — 180

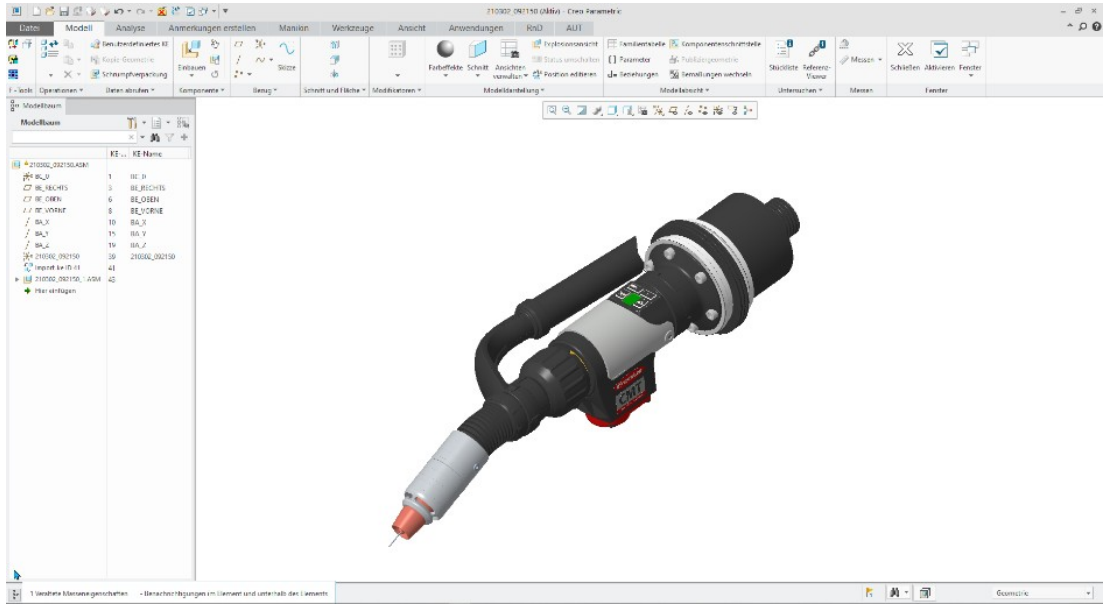
Back | Next



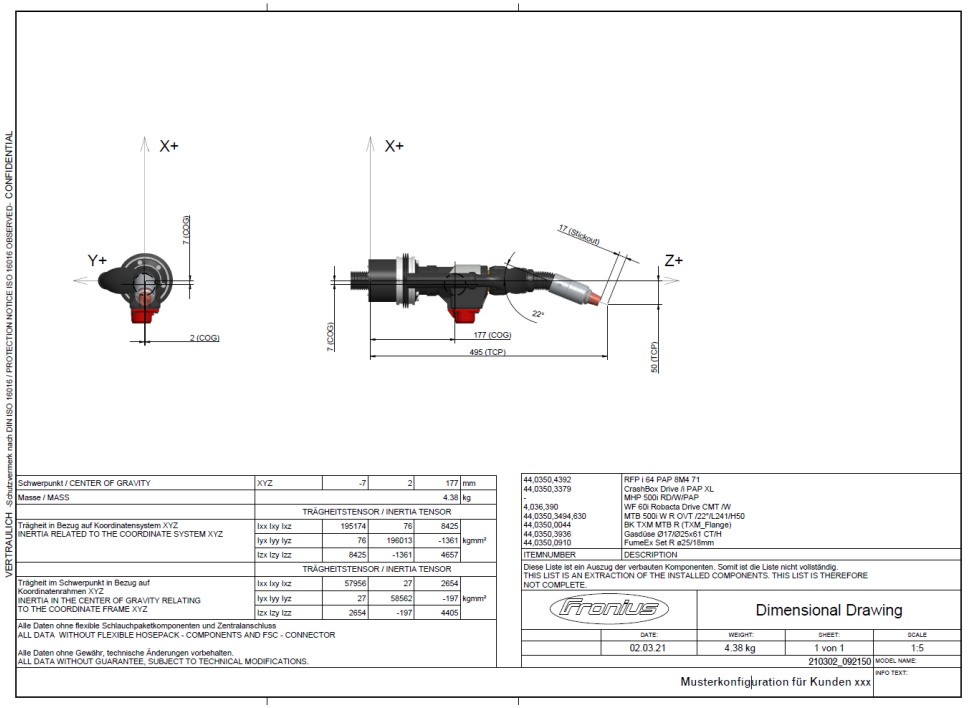

CAD-Data-Download
SELECT CATEGORY > CONFIGURATION / PRODUCT SELECTION > EXPORT DATA
Complete and export
You can enter a text here that will be displayed in the dimension sketch.
Configuration for customer xxx
line 2 (max. 80 characters)
export format
3D-model (.stp)
2D dimensional sketch with mass values (.pdf)
Please enter the e-mail address to which the data should be sent.
office@mustermann.at
Back
Please fill "E-Mail" and confirm it with "↵ Enter"!

The result

– 3D File as Step



2D dimension drawing with COG data



VERTRAULICH -Schutzvermerk nach DIN ISO 16016 / PROTECTION NOTICE ISO 16016 OBSERVED- CONFIDENTIAL

Schwerpunkt / CENTER OF GRAVITY	XYZ	-7	2	177	mm
Masse / MASS				4.38	kg
	TRÄGHEITSTENSOR / INERTIA TENSOR				
Trägheit in Bezug auf Koordinatensystem XYZ INERTIA RELATED TO THE COORDINATE SYSTEM XYZ	Ixx Ixy Ixz	195174	76	8425	kgmm²
	Iyx Iyy Iyz	76	196013	-1361	
	Izx Izy Izz	8425	-1361	4657	
	TRÄGHEITSTENSOR / INERTIA TENSOR				
Trägheit im Schwerpunkt in Bezug auf Koordinatenrahmen XYZ INERTIA IN THE CENTER OF GRAVITY RELATING TO THE COORDINATE FRAME XYZ	Ixx Ixy Ixz	57956	27	2654	kgmm²
	Iyx Iyy Iyz	27	58562	-197	
	Izx Izy Izz	2654	-197	4405	

Alle Daten ohne flexible Schlauchpaketkomponenten und Zentralanschluss
ALL DATA WITHOUT FLEXIBLE HOSEPACK - COMPONENTS AND FSC - CONNECTOR

Alle Daten ohne Gewähr, technische Änderungen vorbehalten.
ALL DATA WITHOUT GUARANTEE, SUBJECT TO TECHNICAL MODIFICATIONS.

44,0350,4392	RFP i 64 PAP 8M4 71
44,0350,3379	CrashBox Drive // PAP XL
-	MHP 500i RD/W/PAP
4,036,390	WF 69 Robacta Drive CMT /W
44,0350,3494,830	MTB 500i W R OVT /22°/L241/H50
44,0350,0044	BK TXM MTB R (TXM_Flange)
44,0350,3936	Gasdüse Ø17/25x61 CTFH
44,0350,0910	FumeEx Set R ø25/18mm

ITEMNUMBER	DESCRIPTION

Diese Liste ist ein Auszug der verbauten Komponenten. Somit ist die Liste nicht vollständig.
THIS LIST IS AN EXTRACTION OF THE INSTALLED COMPONENTS. THIS LIST IS THEREFORE NOT COMPLETE.

fronius

Dimensional Drawing

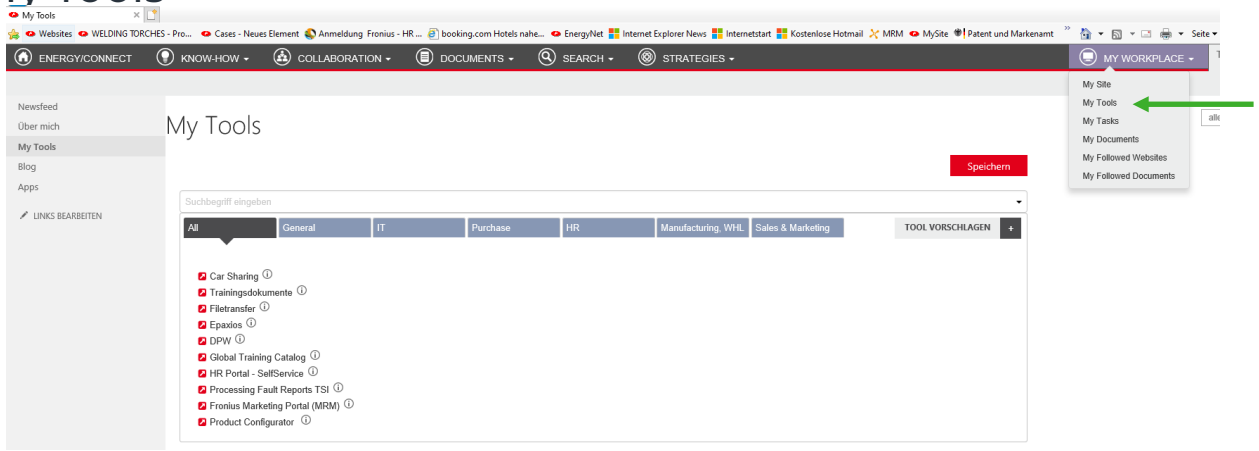
DATE:	WEIGHT:	SHEET:	SCALE
02.03.21	4.38 kg	1 von 1	1:5

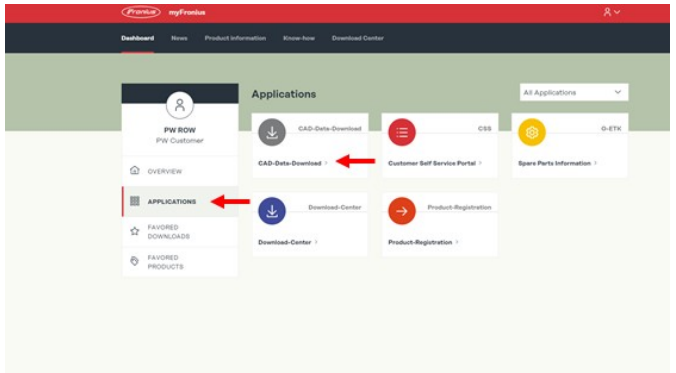
210302_092150 MODEL NAME:

Musterkonfiguration für Kunden xxx INFO TEXT:

Access

- **Fronius employees**
  - Directly via Link https://cad-download.fronius.com/
  - Sharepoint – My Tools



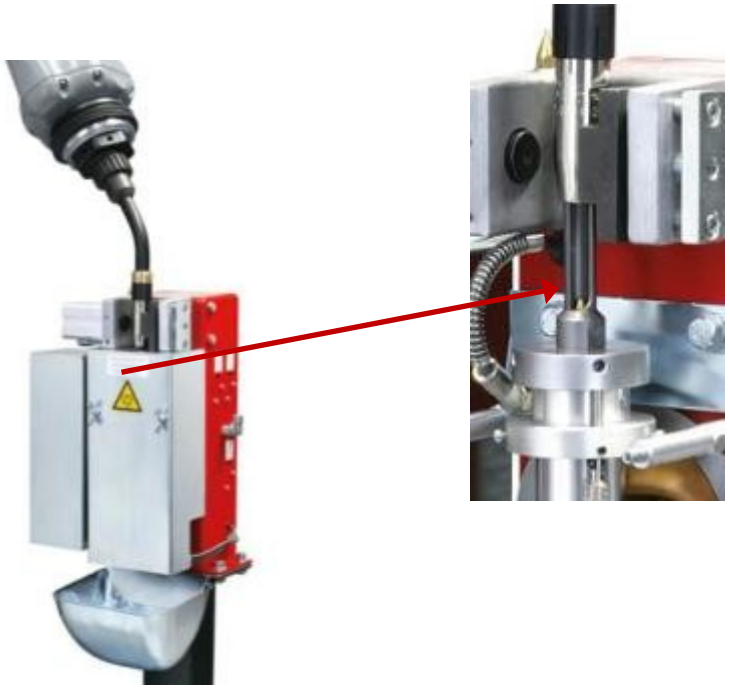


- **Representatives, Dealers, Customers, Integrators**
  - Via MyFronius → all persons who are registered in CRM have access to MyFronius

Welding torch cleaning system

Torch Cleaning System for steel

Further information see product presentation: Link to presentation



Mechanical cleaning with milling tool

Robacta Reamer V Easy

Robacta Reamer Comfort

Robacta Reamer V70

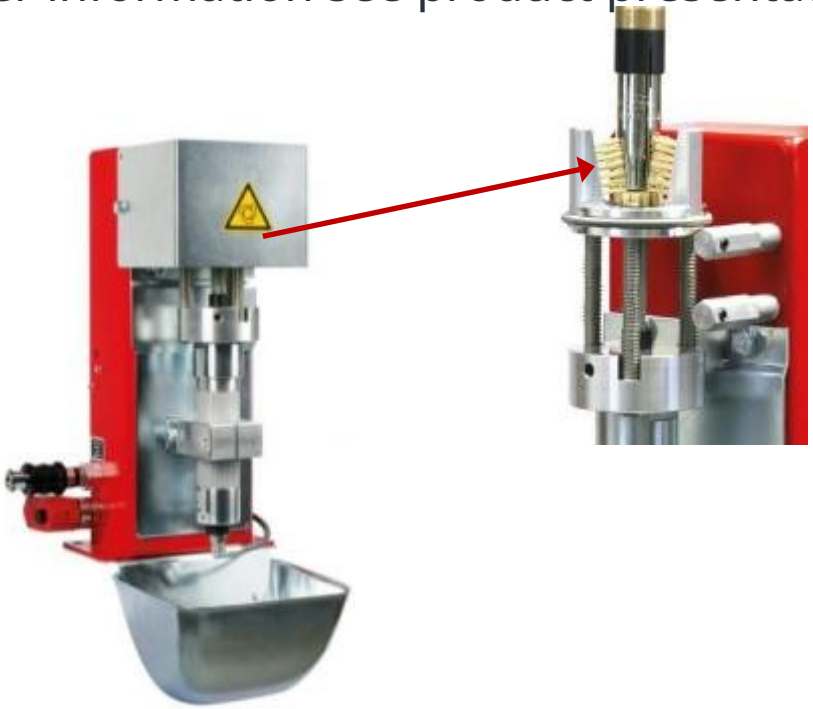
Robacta Reamer Single / Twin

Touchless magnetic cleaning

Robacta TC 2000

Torch cleaning system for aluminum and CuSi

Further information see product presentation: Link to presentation



Mechanical cleaning with special brush head

Robacta Reamer Alu Bürstenkopf

Mechanical cleaning with brush

Robacta Reamer Alu Bürste

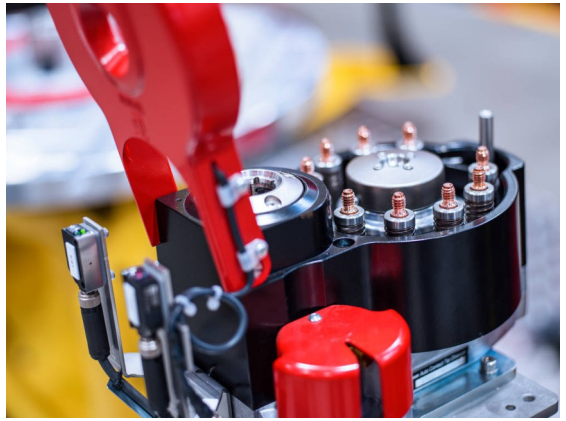
Changing

Robacta CTC – Contact Tip Changer

Increased productivity

Further information see product presentation: Link to presentation

- Automated changing of contact tip
- No need to stop the production for manual replacing of contact tips
- Up to 10 contact tips can be loaded
- Changing of contact tip in around 50 seconds
- Change cycle is adapted to the contact tip wear
- Contact tip is mounted with the specific torque
- Attention: no automated changing of gas nozzle



Robacta TX/i– TorcheXchange System

Further information see product presentation: Link to presentation

- Change of the torch body incl. all wearing parts in **only 30 seconds**

  → **up to 13x faster** than a manual change

- Change of **10 torch bodies** without manual intervention during ongoing production operation

- **Up to 100 % system availability** due to timely and automated replacement of wearing parts
  - Independent of service times (shift change)
  - Defined times, e.g. during part changes
  - This enables **constant weld seam quality**