

Torch Cleaning Stations

Robotic Welding Reaming & Maintenance



Torch Cleaning Station TCS-FP

System overview & technical data

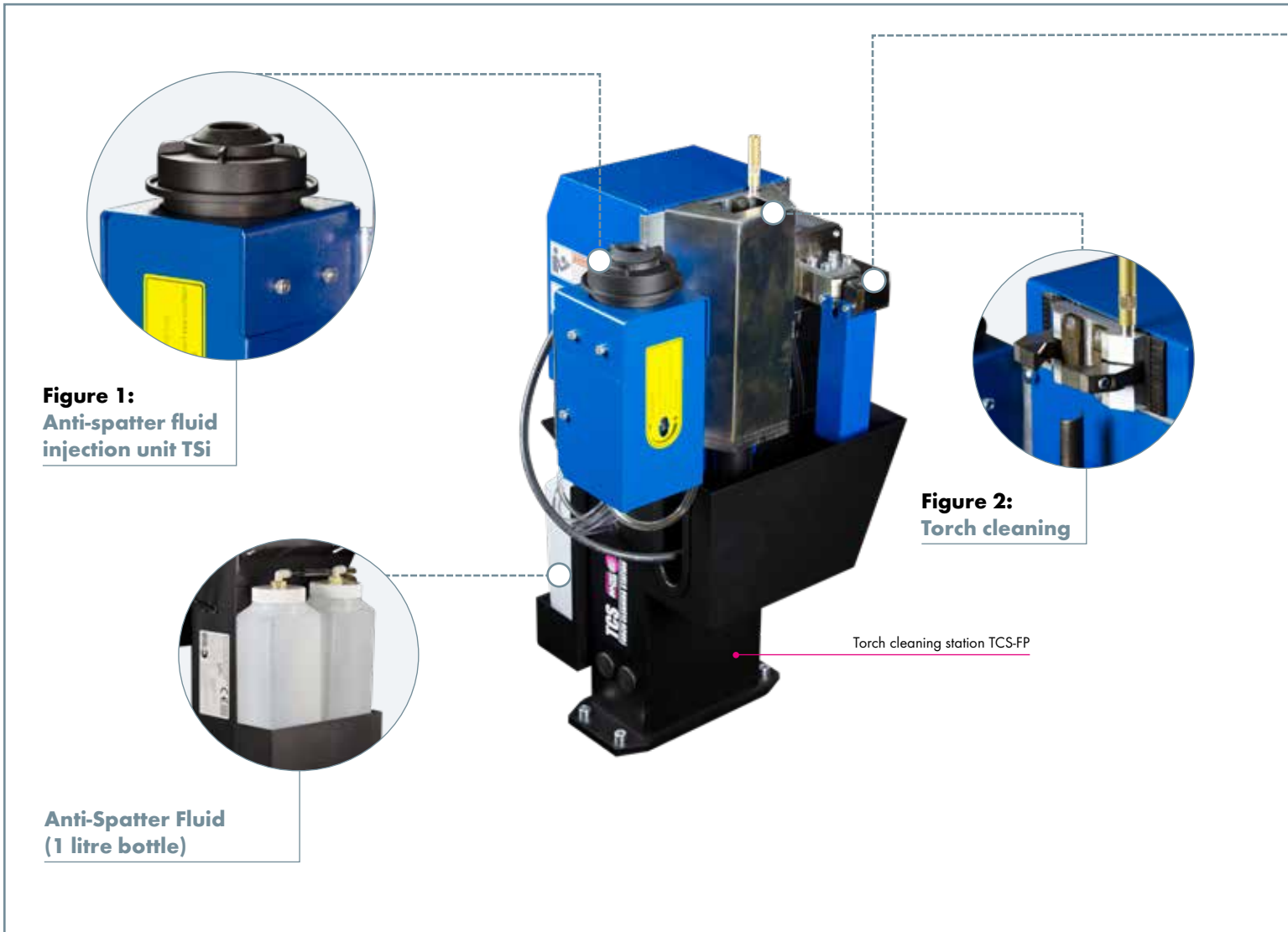


Figure 1:
Anti-spatter fluid
injection unit TSi

Figure 2:
Torch cleaning

Anti-Spatter Fluid
(1 litre bottle)

Torch cleaning station TCS-FP

TCS-FP

The clever solution
against spatter
adhesion

The state-of-the-art torch cleaning station TCS-FP from ABICOR BINZEL is the **Full Package** in robotic welding torch maintenance due to integrated PCB, high quality components, as well as **environmental friendliness and work shop safety** by fully covered maintenance functions.

Ensure **process stability** in automated welding by using preventive torch cleaning, wire cutting and anti-spatter spraying with TCS-FP!

A perfected station height matches most industry-used cleaning stations, and utilizes the same reaming and clamp sets as the predecessor TCS-6 units.

Optimal and time saving cleaning of the gas nozzle for a reliable welding process and an increase in plant availability – torch maintenance at it's best...

Figure 1:

Anti-spatter fluid injection unit TSi

- Activated just by robot movement
- High efficient spray function
- Low consumption
- Collection of remaining anti-spatter fluid
- Fully protected for clean environment

Figure 2:

Torch cleaning

- Reamers, specially designed to suit the welding torch clamp sets for each nozzle diameter
- Strong, high quality air motor for powerful cleaning
- Complete dirt & dust protection
- Rugged 4-point clamping of the gas nozzle
- Integrated PCB to control reaming functions
- Single point air & electrical connections



Figure 3:
Wire cutting unit



TCS-FP – uncovered to show reamer blade and mechanism

Figure 3:
Wire cutting unit

- Strong, reliable cutting device
- Clean cut for a consistent arc-start
- Hardened cutting blade for long lifetime



Technical data:

General data

Total weight: approx. 23 kg (51 lbs)

Ambient temperature: + 5°C to + 50°C
41°F to + 122°F

Pneumatic motor

Air consumption: approx. 400 l/min.

Pneumatic motor /
nominal speed
with oiled air: approx. 650 rpm at 6 bar (90 psi)

Pneumatic connection

Connection ID: Ø 10 mm
Nominal pressure: 6 bar (90 psi)
Operating pressure: 6–8 bar (90–120 psi)
Compressed air quality
(ISO 8573-1:2010): min. class 4

Electrical clamping block

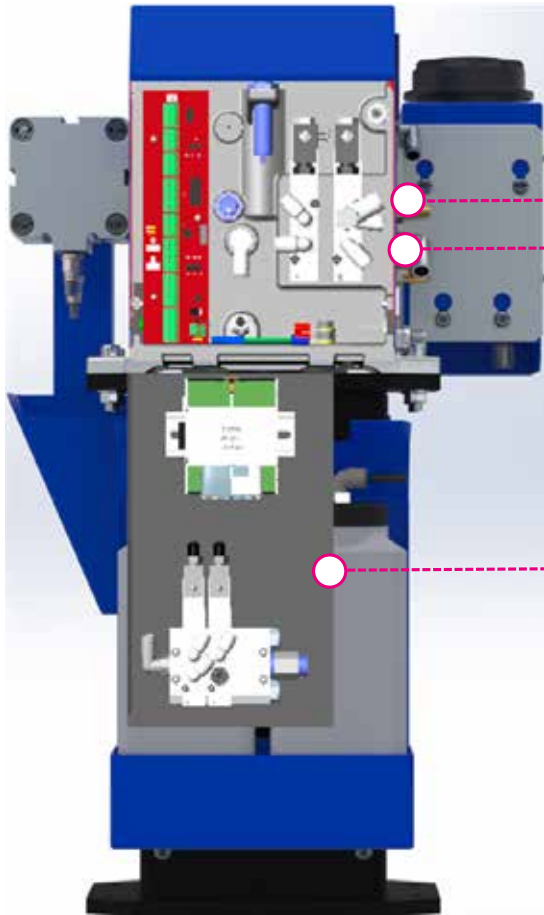
*Input: 2 inputs for triggering the station and
wire cutter valve
Control voltage: 24 V DC
Power consumption: 2.8 W
*Output: 1 output from inductive proximity switches
Operating voltage: 20 – 30 V DC
Continuous current: max. 100 mA
Current consumption: approx. 14 mA (24 V)
Max. wire diameter
at 6 bar: 1.6 mm, solid wire

*Additional inputs and outputs possible.

Note: Turck control cord not included. 5m cord is p/n 175.0819

Torch Cleaning Station TCS-FP

Improvements at a Glance



Standard TCS Configuration:

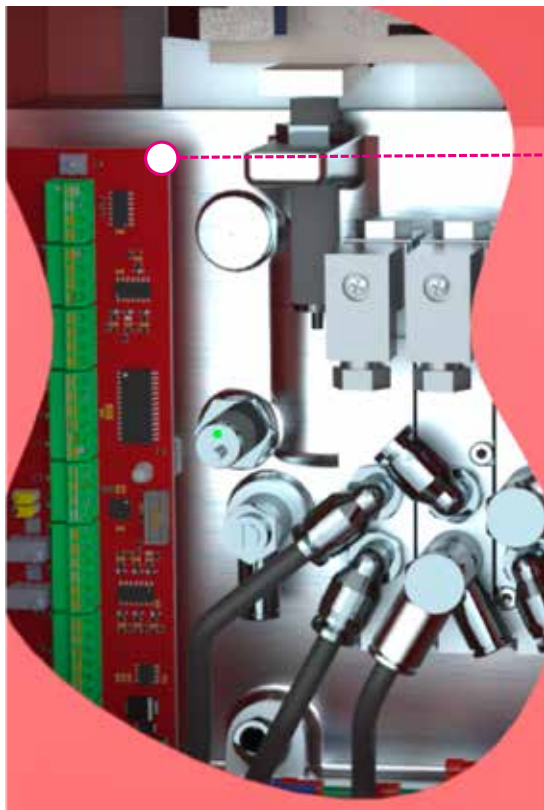
- Two solenoids
- Integrated connector (Turck 6-pole) for simple single point connection of power and communications

Single Point Compressed Air Connection

- Simplified installation

Future Fieldbus Connection:

- Future compatibility with RS5485



New Microcontroller PC Board Controls:

- 24 VDC 100mA + Current Consumption from sensors/actuators

Inputs: Start +/-
Outputs: Ready +/-

Additional Free Inputs:

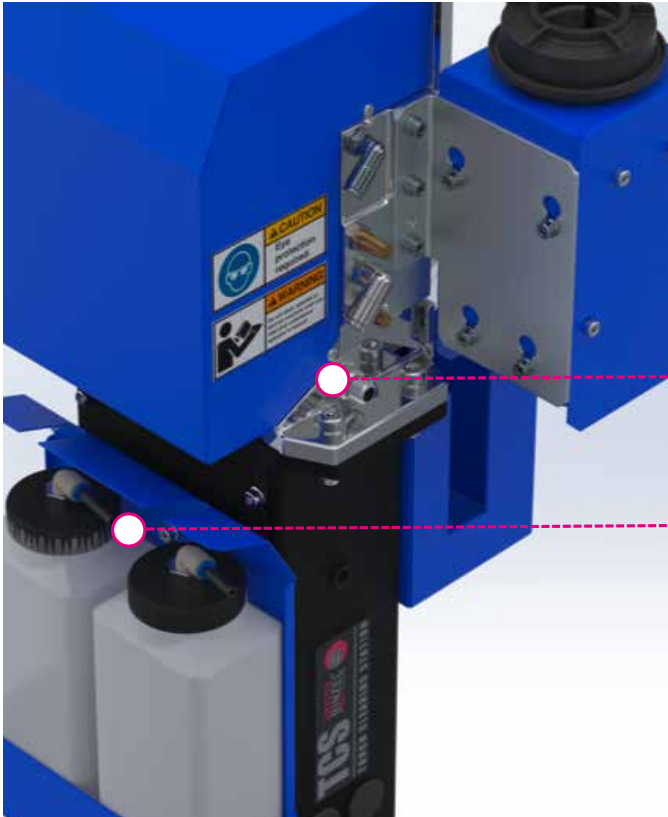
- 2x switching +24V
- 2x switching GND

Additional Free Outputs

- 3x (24V / 0.6A)

No Terminal block or other wiring necessary

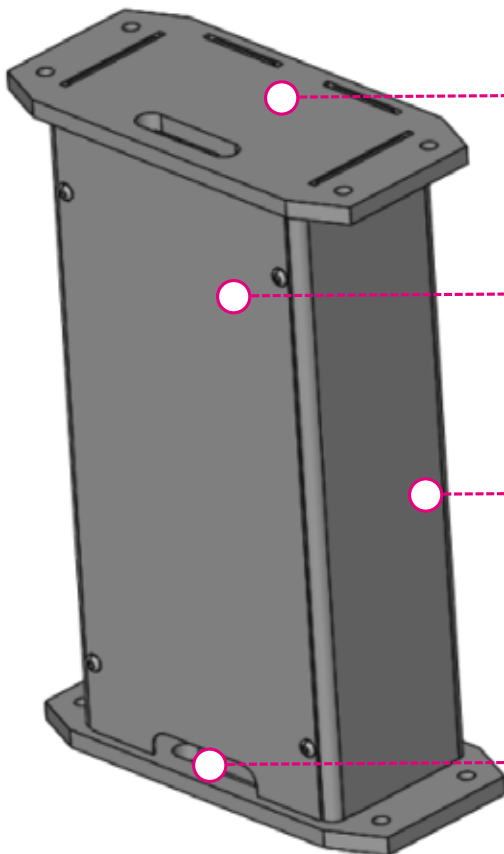
Improvements at a Glance



Single point Turck connection for electrical wiring

*Note: Turck control cord not included.
5m cord is p/n 175.0819*

Pre-plumbed Anti-spatter bottles with check valve & return flow hose



Mounting stand matches station size

Removable cover plate for accessibility

Optimized height to match most industry-used cleaning stations

Slot hole for future Fieldbus connection (cable access)

Torch Cleaning Station TCS-FP

Reamer and Clamp set Parts



Torch type	with gas nozzle Type	Inner- Ø [inch]	Inner- Ø [mm]	Length [inch]	Length [mm]	Clamp set Part-No.	Reamer Part-No.
ABIROB® A 360	145.0592	5/8"	16.0	2.68"	68.0	831.0166	831.0487
	145.0593	5/8"	16.0	2.75"	70.0	831.0166	831.0487
	145.0594	5/8"	16.0	2.56"	65.0	831.0166	831.0589
	145.0595	9/16"	14.0	2.68"	68.0	831.0166	831.0592
	145.0596	9/16"	14.0	2.75"	70.0	831.0166	831.0592
	145.0597	9/16"	14.0	2.56"	65.0	831.0166	831.0593
	145.0599	1/2"	13.0	2.68"	68.0	831.0166	831.0604
	145.0601	1/2"	13.0	2.56"	65.0	831.0166	831.0604
ABIROB® A 500	145.0580	5/8"	16.0	2.95"	75.0	831.0148	831.0488
	145.0581	5/8"	16.0	3.03"	77.0	831.0148	831.0487
	145.0582	5/8"	16.0	2.83"	72.0	831.0148	831.0591
	145.0589	1/2"	13.0	2.95"	75.0	831.0148	831.0180
	145.0590	1/2"	13.0	3.03"	77.0	831.0148	831.0180
	145.0591	1/2"	13.0	2.83"	72.0	831.0148	831.0169
	145.0586	9/16"	14.0	2.95"	75.0	831.0148	831.0592
	145.0587	9/16"	14.0	3.03"	77.0	831.0148	831.0592
	145.0588	9/16"	14.0	2.83"	72.0	831.0148	831.0593
	145.0583	5/8"	16.0	2.95"	75.0	831.0148	831.0488
	145.0584	5/8"	16.0	3.03"	77.0	831.0148	831.0488
	145.0585	5/8"	16.0	2.83"	72.0	831.0148	831.0591
ROBO WH 242	145.0090	5/8"	15.5	2.44"	62.0	831.0146	831.0022
	145.0135	1/2"	13.0	2.44"	62.0	831.0146	831.0361
	145.0472	5/8"	15.5	2.24"	57.0	831.0146	831.0237
	145.0473	1/2"	13.0	2.24"	57.0	831.0146	831.0356
	145.0547	1/2"	13.0	2.32"	59.0	831.0146	831.0356
ABIROB® W 300	145.0159	7/16"	11.0	2.44"	62.0	831.0146	Contact
	145.0564	5/8"	15.5	1.909"	48.5	831.0147	Contact
	145.0495	1/2"	13.0	1.75"	44.5	831.0147	831.0180
ABIROB® W & ROBO WH 500	145.0494	5/8"	15.5	1.75"	44.5	831.0147	831.0576
	145.0479	1/2"	13.0	2.97"	75.5	831.0147	831.0413
ROBO WH 500	145.0556	1/2"	13.0	3.05"	77.5	831.0147	831.0413
	145.0466	5/8"	15.5	2.83"	72.0	831.0147	831.0216
	145.0568	5/8"	15.5	2.85"	72.5	831.0147	831.0216
	145.0553	5/8"	15.5	2.97"	75.5	831.0147	831.0023
	145.0544	5/8"	15.5	2.97"	75.5	831.0147	831.0023
	145.0480	5/8"	15.5	3.03"	77.0	831.0147	831.0023
	145.0561	13/16"	20.0	2.75"	70.0	831.0147	831.0369
ABIROB® W & ROBO WH 600	145.0689	3/4"	18.0	3.62"	92.0	831.0781	831.0162
	145.0686	7/8"	21.5	3.62"	92.0	830.0781	831.0747
	145.0687	7/8"	21.5	3.38"	86.0	831.0781	831.0763
ROBO WH 652T	145.0688	7/8"	21.5	3.74"	95.0	831.0781	831.0764
	145.0574	3/4"	18.0	3.30"	84.0	831.0781	831.0587
	145.0575	7/8"	21.5	3.30"	84.0	831.0781	831.0547
	145.0606	3/4"	18.0	3.23"	82.0	830.0781	831.0587

Ordering information

TCS-FP Torch Cleaning Station

Ordering Instructions for Complete Station

Example: TCSFP-25-A

TCSFP

-

25

-

A

Model

Nozzle Diameter*

Reamer Blade

Torch Model

Clamp set

Reamer Blade

Cleaning Station TCS-FP W/WCS, Injector, Short Stand
(p/n 831.0885.1)

*Note: Turck control cord not included.
5m cord is p/n 175.0819*

20 - 831.0145
21 - 831.0146
22 - 831.0166
24 - 831.0171
25 - 831.0147
27 - 831.0152
28 - 831.0148
30 - 831.0781
31 - 831.0781

A - 831.0023
B - 831.0413
C - 831.0488
D - 831.0592
E - 831.0487
G - 831.0180
H - 831.0764
I - 831.0587
J - 831.0462
K - 831.0431
L - 831.0429
M - 831.0581
N - 831.0591
O - 831.0162
P - 831.0485
Q - 831.0604
R - 831.0487
S - 831.0747
T - 831.0547
U - 831.0593
V - 831.0376
W - 831.0368
X - 831.0165
Z - 831.0169
AA - 831.0216
AB - 831.0369
AE - 831.0280
AF - 831.0618
AG - 831.0184
AH - 831.0589
AJ - 831.0763
AK - 831.0289
AL - 831.0022
AM - 831.0361
AN - 831.0237
AO - 831.0161
AP - 831.0389

*Nozzle Diameter = Outside diameter (OD) of the gas nozzle in millimeters (mm) at the clamping position.

Torch Cleaning Station TCS Compact

System overview & technical data

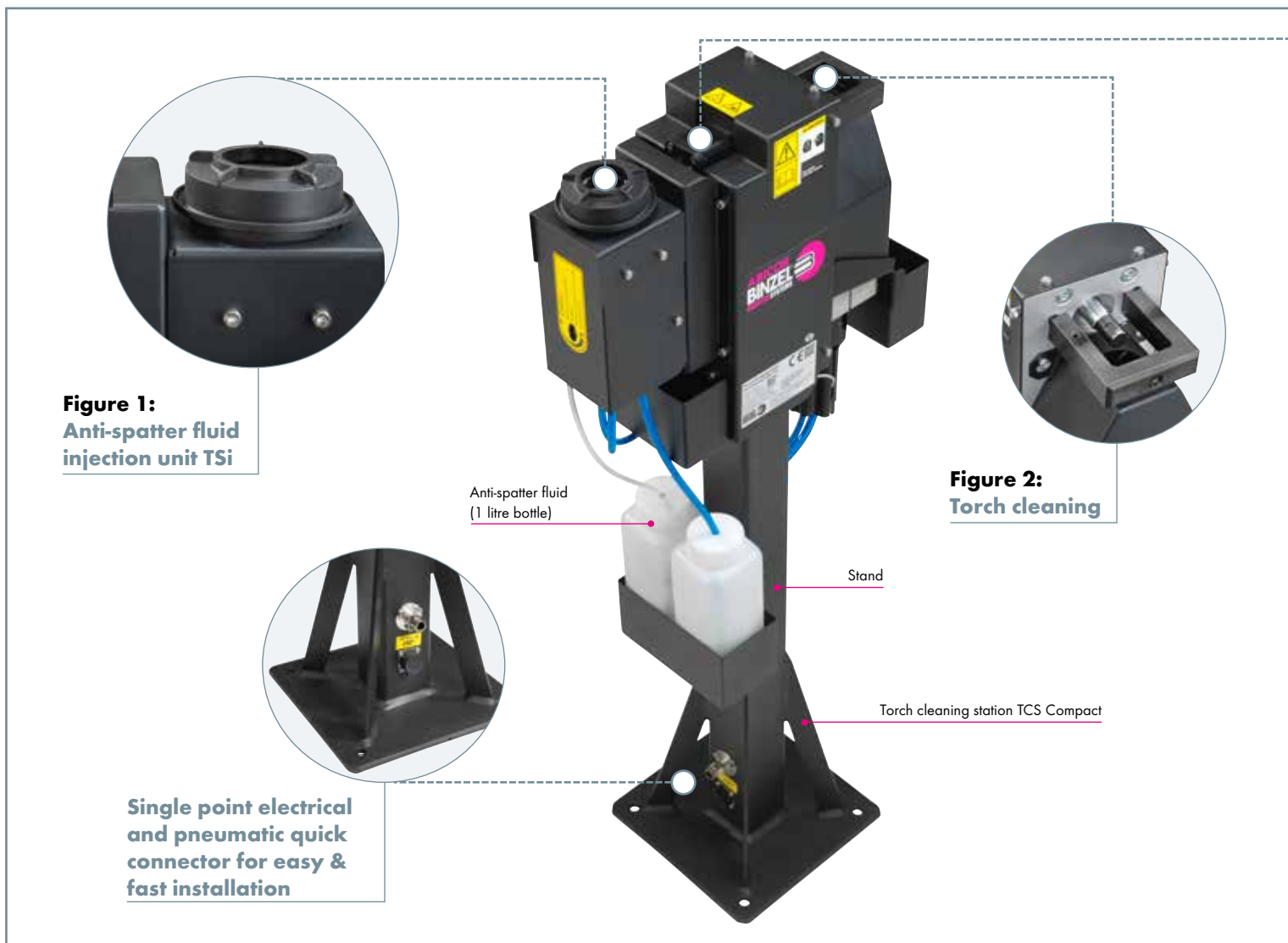


Figure 1:
Anti-spatter fluid injection unit TSi

Figure 2:
Torch cleaning

Single point electrical and pneumatic quick connector for easy & fast installation

TCS Compact. The clever solution against spatter adhesion

The state-of-the-art torch cleaning station TCS Compact from ABICOR BINZEL stands for **quick and easy installation** to practically all robot brands and types, **top reliability and long life-time** due to high quality components, as well as **environmental friendliness and work shop safety** by fully covered maintenance functions.

Ensure **process stability** in automated welding by using preventive torch cleaning, wire cutting and anti-spatter spraying with TCS Compact!

Optimal and time saving cleaning of the gas nozzle for a reliable welding process and an increase in plant availability – torch maintenance at it's best...

Figure 1: Anti-spatter fluid injection unit TSi

- Activated just by robot movement
- High efficient spray function
- Low consumption
- Collection of remaining anti-spatter fluid
- Fully protected for clean environment

Figure 2: Torch cleaning

- Reamers, specially designed to suit the welding torch
- V-block for each nozzle diameter – no adjustments
- Strong, high quality air motor for powerful cleaning
- Complete dirt & dust protection
- Reliable 3-point nozzle clamping



Figure 3:
Wire cutting unit



TCS Compact – fully covered and protected for a clean & safe environment

Figure 3:
Wire cutting unit

- Strong, reliable cutting device
- Clean cut for a consistent arc-start
- Hardened cutting blade for long lifetime



Technical data:

General data

Total weight:	approx. 30 kg (66 lbs) (long stand version), approx. 22 kg (49 lbs) (short stand version)
Ambient temperature:	+ 5 °C to + 50 °C

Pneumatic motor

Air consumption:	approx. 400 l/min.
Pneumatic motor / nominal speed with oiled air:	approx. 650 rpm at 6 bar (90 psi)

Pneumatic connection

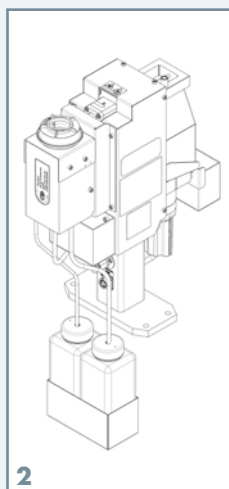
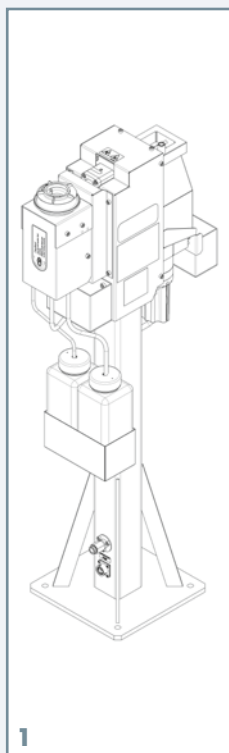
Connection ID:	Ø 10 mm
Nominal pressure:	6 bar (90 psi)
Operating pressure:	6–8 bar (90–120 psi)
Compressed air quality (ISO 8573-1:2010):	at least class 4

Electrical clamping block

Input:	3 inputs for triggering the 5/2 directional control valves
Control voltage:	24 V DC
Power consumption:	2.8 W
Output:	2 outputs from inductive proximity switch (normal open switch - PNP)
Operating voltage:	10 – 30 V DC
Continuous current:	max. 100 mA
Current consumption:	approx. 14 mA (24 V)
Max. wire diameter at 6 bar:	1.6 mm, solid wire

Torch Cleaning Station TCS Compact

Order information



Please see
Pages 14 - 15 for
TSi Anti-spatter
Injector Parts

TCS Compact Part Numbers

No.	Type	Part-No.
1	TCS Compact LP ¹ /5M ² /PNP ³	830.2376.1
2	TCS Compact SP ¹ /5M ² /PNP ³	830.2366.1

¹ Stand type: LP = long stand
SP = short stand

² Connection cable length (5 meter)

³ Proximity switch type (PNP)

Including: 1 set of sealing inserts (rubber), 5 meter signal cable and 1 litre anti-spatter fluid.
Please order the reamer and V-block separately.

Spare Parts for Cleaning Station TCS Compact

No.	Type	Description	Part-No.
3	Rubber bellows	Rubber bellows for air motor	830.2104
4	Protection cap	Protection cap for air motor	830.2103
5	Collect box	Wire collect box	830.2120
6	Signal cable	TCS control lead cpl.:	
		5 m (16')	101.0250.1
		10 m (32')	101.0251.1
		15 m (49')	101.0252.1
		20 m (65')	101.0253.1

Reamer and V-block Parts

Torch type	with gas nozzle Type	Inner Ø [inch]	Inner-Ø [mm]	Length [inch]	Length [mm]	V-block Part-No.	Reamer Part-No.
ABIROB® A 360	145.0599	1/2"	13.0	2.68"	68.0	830.2358	830.2199
	145.0600	15/32"	12.0	2.75"	70.0	830.2358	830.2199
	145.0601	15/32"	12.0	2.56"	65.0	830.2358	830.2199
	145.0597	9/16"	14.0	2.56"	65.0	830.2358	830.2207
	145.0595	9/16"	14.0	2.68"	68.0	830.2358	830.2207
	145.0596	9/16"	14.0	2.75"	70.0	830.2358	830.2207
	145.0592	5/8"	16.0	2.68"	68.0	830.2358	830.2165
	145.0593	5/8"	16.0	2.75"	70.0	830.2358	830.2165
	145.0594	5/8"	16.0	2.56"	65.0	830.2358	830.2166
ABIROB® A 500	145.0589	1/2"	13.0	2.95"	75.0	830.2361	830.2187
	145.0590	1/2"	13.0	3.03"	77.0	830.2361	830.2187
	145.0588	9/16"	14.0	2.83"	72.0	830.2361	830.2207
	145.0580	5/8"	16.0	2.95"	75.0	830.2361	830.2164
	145.0581	5/8"	16.0	3.03"	77.0	830.2361	830.2164
	145.0583	5/8"	16.0	2.95"	75.0	830.2361	830.2164
	145.0584	5/8"	16.0	3.03"	77.0	830.2361	830.2164
ROBO WH 242	145.0090	5/8"	15.5	2.44"	62.0	830.2357	Contact
	145.0135	1/2"	13.0	2.44"	62.0	830.2357	830.2202
	145.0472	5/8"	15.5	2.24"	57.0	830.2357	Contact
	145.0473	1/2"	13.0	2.24"	57.0	830.2357	830.2202
	145.0547	1/2"	13.0	2.32"	59.0	830.2357	830.2202
	145.0159	7/16"	11.0	2.44"	62.0	830.2357	Contact
ABIROB® W 300	145.0564	5/8"	16.0	1.909"	48.5	830.2359	830.2187
	145.0495	1/2"	13.0	1.75"	44.5	830.2359	Contact
	145.0494	5/8"	16.0	1.75"	44.5	830.2359	Contact
ABIROB® W and ROBO WH 500	145.0479	1/2"	13.0	2.97"	75.5	830.2359	830.2190
	145.0556	1/2"	13.0	3.03"	77.5	830.2359	830.2190
	145.0466	5/8"	16.0	2.83"	72.0	830.2359	830.2188
	145.0568	5/8"	16.0	2.85"	72.5	830.2359	830.2188
	145.0553	5/8"	16.0	2.97"	75.5	830.2359	830.2168
	145.0544	5/8"	16.0	2.97"	75.5	830.2359	830.2168
	145.0480	5/8"	16.0	3.03"	77.0	830.2359	830.2168
	145.0616	13/16"	20.0	2.97"	75.5	830.2359	830.2189
	145.0550	1/2"	13.0	2.97"	75.5	830.2359	830.2190
	145.0561	13/16"	20.0	2.75"	70.0	830.2359	830.2189
	ABIROB® W and ROBO WH 600	145.0689	3/4"	18.0	3.62"	92.0	830.2363
145.0686		7/8"	21.5	3.62"	92.0	830.2363	830.2379
145.0687		7/8"	21.5	3.38"	86.0	830.2363	830.2379
145.0688		7/8"	21.5	3.74"	95.0	830.2363	830.2379
ROBO WH 652T	145.0574	3/4"	18.0	3.30"	84.0	830.2363	830.2198
	145.0575	7/8"	21.5	3.30"	84.0	830.2362	830.2198
	145.0606	3/4"	18.0	3.22"	82.0	830.2363	830.2198

V-block and reamer for other gas nozzles on request.

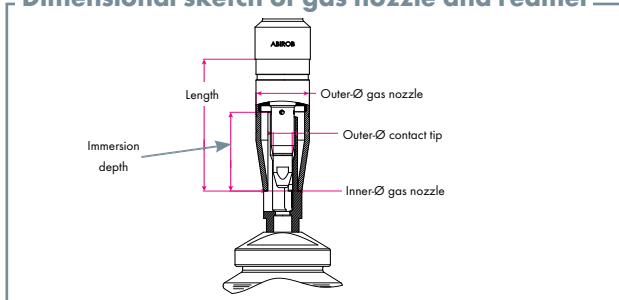
Reamer



V-block



Dimensional sketch of gas nozzle and reamer



TSi Anti-Spatter Injection Unit

For TCS-FP, TCS Compact, & as a Stand-alone Unit

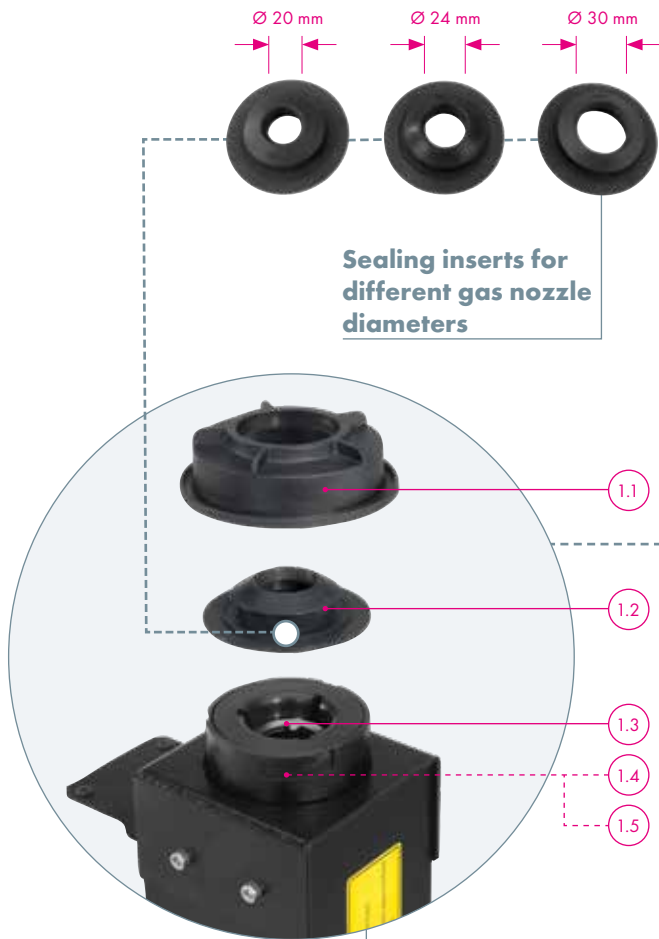


Figure 1:
Tool-free replacement
of spare parts by means
of bayonet fitting



Figure 2:
Sealed spraying
chamber



Injection unit TSi. Plug & Spray ...

The TSi from ABICOR BINZEL - the stand-alone welding torch injection unit for simple integration in existing or new processes. The spray pulse is triggered by the integrated activating mechanism as soon as the welding torch is moved into the TSi vertically up to the spraying position. This makes a complicated electric actuator or integration in the robot controller unnecessary.

In addition, the TSi scores with an economical and environmentally-conscious spraying process. The sealed spraying chamber prevents the anti-spatter fluid from escaping during the spray pulse and the infinitely variable spray fluid setting ensures correct dosing. Both enable the lowest

possible consumption of anti-spatter fluid and increase a safe and clean welding work environment.

Along with these features, the TSi guarantees the familiar and even coating of the cleaned welding torch inside and out - with ABICOR BINZEL's tried and tested anti-spatter fluid and in this way prevents weld spatter from sticking.

The TSi offers simple integration in the welding process, reliable welding torch maintenance and the efficient and environmentally-conscious use of anti-spatter fluid.

Detailed view of the roller push-button for controlling the valve

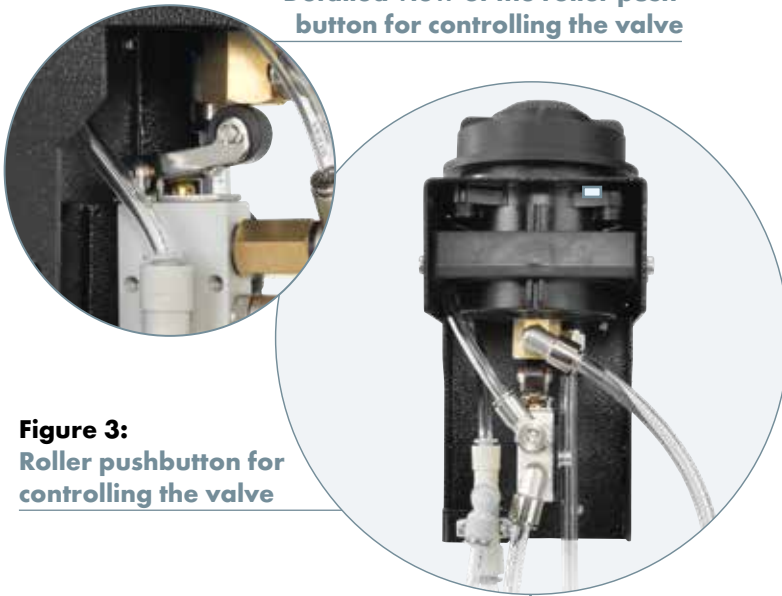


Figure 3:
Roller pushbutton for controlling the valve

■ **Figure 1:**
Tool-free replacement of spare parts by means of bayonet fitting

- 1.1 Device cover
- 1.2 Seal insert
- 1.3 Pressure flange
- 1.4 Injection nozzle
- 1.5 Collecting tank

■ **Figure 2:**
Sealed spraying chamber

No overspray and therefore no coating of the workpiece and the surroundings with anti-spatter fluid
 Individual sealing inserts for different gas nozzle diameters
 Even coating of the welding torch – inside and out
 Highly efficient spraying process
 Clean and safe welding environment

■ **Figure 3:**
Roller pushbutton for controlling the valve

Integrated activation mechanism
 Robot movement actuates the roller pushbutton and starts the spray pulse
 Robust and maintenance-free construction

■ **Figure 4:**
Dosing the anti-spatter fluid

Variable dosing of the anti-spatter fluid
 Easy to adjust using a flat-tip screwdriver
 Highly efficient spraying process guaranteed
 Economic and environmentally-conscious torch maintenance

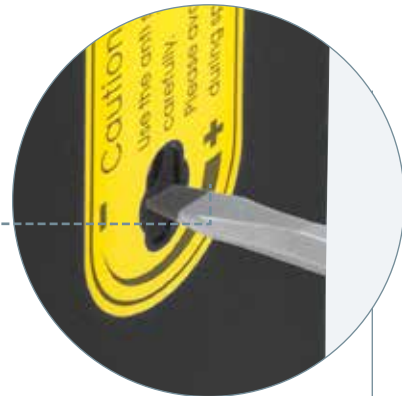


Figure 4:
Dosing the anti-spatter fluid

TSi Anti-spatter Injector Features:

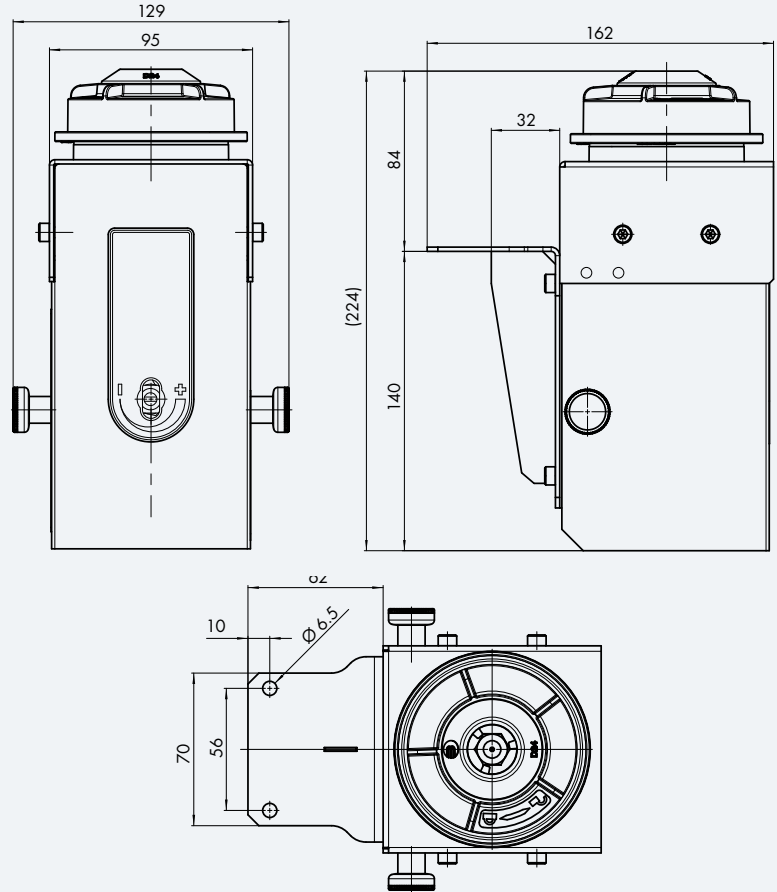
- Simple activation – electric actuator not required
- Spray pulse activated by the robot movement
- No complicated integration into the robot controller
- Sealed and highly efficient spraying process – no overspray
- Clean and safe welding environment
- Low consumption of the anti-spatter fluid
- Plug & spray – no electrical programming needed

TSi Anti-Spatter Injection Unit

Technical data & Dimensions



Dimensions: Injection unit TSi



Technical Data: Injection unit TSi

General information:

Weight: 3.3 lbs/1.5 kg (without anti-spatter fluid)

Ambient temperature in operation: 32°F to 104°F / 0 °C to +40 °C

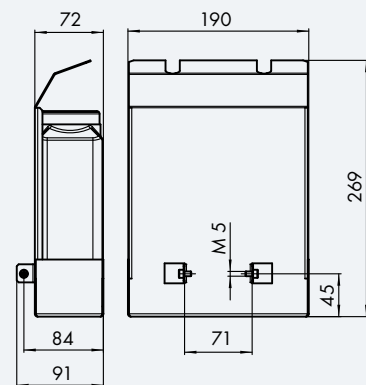
Relative humidity in operation: up to 90% at 20 °C

Pneumatic connection:

Connection port: \varnothing 8 mm

Operating pressure: min. 72 psi up to max. 87 psi

Dimensions (in millimeters): TSi bottle holder



Replacement Parts (for TCS-FP and TCS Compact)



Injection unit TSi

No.	Type	Description	Part-No.
1	Injection unit TSi	Injection unit TSi incl. 1 liter anti-spatter fluid and three sealing inserts (Ø 20, 24, 30 mm)	830.2285

Spare parts for the injection unit TSi

No.	Type	Description	Part-No.
2	Device cover	Device cover with bayonet fitting	830.2237
3	Sealing insert: Ø 20 mm Ø 24 mm Ø 30 mm	Seal to the gas nozzle	830.2232 830.2233 830.2234
4	Pressure flange	Contact surface of the gas nozzle for spray pulse activation	830.2265
5	Injection nozzle	Injection nozzle for the even distribution of the anti-spatter fluid	830.2133
6	Collecting tank	Collecting tank and filter for excess anti-spatter fluid	830.2240
7	Oil-based Anti-spatter	1 gallon bottle 5 gallon bottle 55 gallon container	192.9017 192.9012 192.9007
	Water-based Anti-spatter	1 gallon bottle 5 gallon bottle 55 gallon container	192.8009 192.8010 192.8011
not ill.	Fixing bracket TSi	Fixing bracket for attaching the TSi to torch cleaning stations	831.0824



BINZEL, S.A. DE C.V.
Municipio de Pabellon de Arteaga 102
Valle de Aguascalientes, 20358
San Francisco de los Romo, Ags. MEXICO
Tel: +52(499) 9730133
Fax: +52(449) 9731388
E-mail: www.binzel.com.mx



ABICOR BINZEL USA, Inc.
650 Medimmune Ct., Suite 110
Frederick, MD 21703-8619
Tel: 301.846.4196
Fax: 301.846.4497
customerservice@abicorusa.com

www.binzel-abicor.com