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since 1964

**INDUSTRY**

# Stud welding

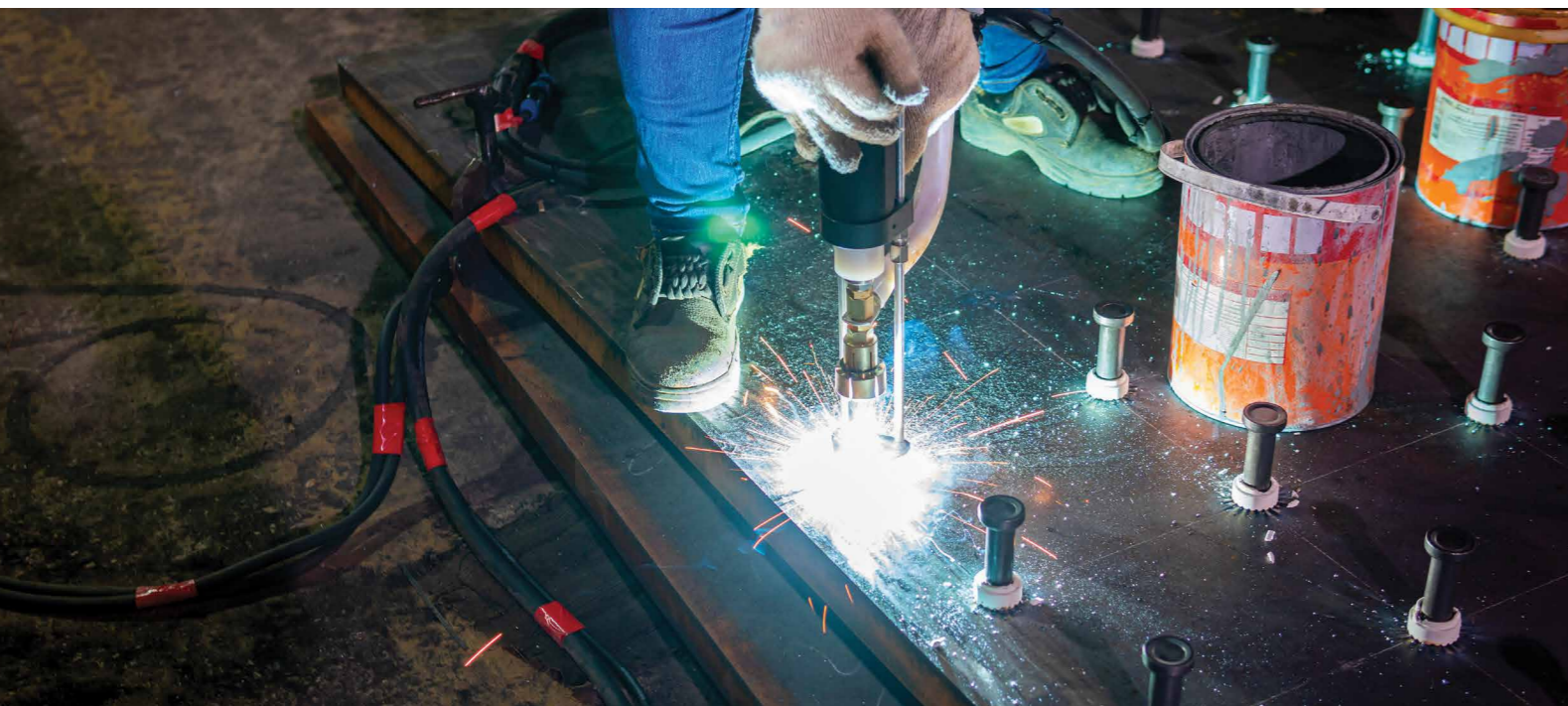
using Capacitive Discharge (CD) & Drawn Arc (DA)

# We have the solutions for your assembly needs



Stud welding is a process in which an electric arc is established between the base of a stud and a workpiece, producing a weld in just a fraction of a second. Our CAPATEK (Capacitive Discharge) and ARCPULL (Drawn arc) power sources are designed for all kinds of assembly applications in the industrial and construction sectors.

Assembly method	GYS products	Power supply	Current range	Welding studs	Weight
<b>Capacitive discharge</b> CD	CAPATEK 66	1~ 110 / 230 V	-	8 mm max.	11 kg
<b>Drawn arc</b> DA	ARCPULL 350	1~ 230 V	10 - 350 A	8 mm max.	11 kg
	ARCPULL 700	3~ 400 V	50 - 680 A	13 mm max.	17 kg



## Key benefits

### Time saving

Each stud weld takes just a few seconds, compared with the minutes required for traditional processes.

### No through bolting

Eliminates the need for drilling and tapping. The supporting workpiece will not be weakened by the presence of any holes.

### Reliability and repeatability

Complete control of the welding process, ensuring that each weld is identical.

### Weld strength

The weld is more resistant than just the stud or the base material.

### Very easy to use

Qualified welders are not required. Access to both sides of the workpiece is not required.

## A range of attachments

A wide range of components can be welded:

- Threaded and internal-thread studs
- Rings
- Nails
- Ground studs
- Stainless steel rods
- Concrete anchor etc...

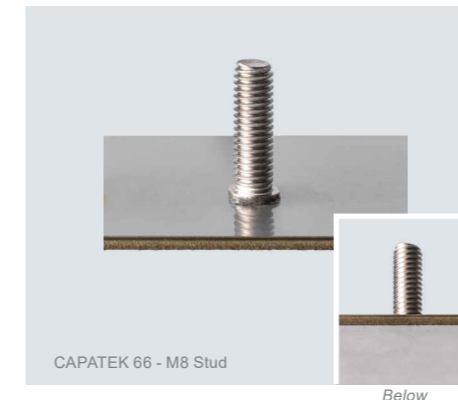
Each insert requires a specific attachment.

## Multiple applications

- Industry
- Construction metalwork
- Automotive

## 2 distinct processes

Stud welding is generally divided into two categories: capacitive discharge (CD) welding, and drawn arc (DA) stud welding. It is essential to select the right process for your application.



## Capacitive Discharge (CD) welding

When stud welding by capacitive discharge, the weld is achieved by discharging a capacitor bank via the ignition tip on the stud. The welding time is between 1 and 3 ms.

This technique is recommended when the studs are being welded to very thin sheet metal. The weld leaves virtually no discolouration, marks, or deformation on the reverse of the workpiece (visible side). Ideal for welding stainless steel panelling (bathroom, kitchen, etc).



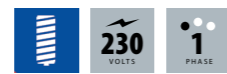
## Drawn Arc (DA) welding

With the drawn arc welding process, the weld is created by an electric arc between the end of the stud and the workpiece. The thermal output from the arc melts the workpiece itself at the point of contact, as well as the end of the stud. After the arc is extinguished, a mechanical action plunges the stud into the weld pool, which creates a bead around it.

Drawn arc stud welding produces a penetrative weld with a high weld strength. This process is best suited for welding on thick material, but also when the desired result is to maximise the tensile strength of the weld.

	CAPATEK (CD)		ARCPULL (DA)	
Settings	Instructions		Automatic and synergic	
Gun	CAPATEK 66 FV		ARCPULL 350	ARCPULL 700
	With retraction (G1)	By contact (C1)	Motorised	Motorised
Diameter of base insert (mm)	Ø3 → Ø8 Copper-plated steel, stainless steel, Aluminium and Brass	Ø3 → Ø8 Copper-plated steel and stainless steel	Ø3 → Ø8 Steel/Alu/Stainless steel	Ø3 → Ø13 Steel/Alu/Stainless steel
Sheet metal thickness	1/10 of stud diameter		1/4 of stud diameter 1/2 of the aluminium stud	
Speed	★★★★		★★★★	
Stud length	40 mm max.		100 mm max.	160 mm max.
Concrete anchor	-		-	<input checked="" type="checkbox"/>
Insulation nail (no gas required)	-		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Earth clamps	Yes		No, up to Ø6 mm	Yes
Gas shielding	not required		not necessary when using ferrules necessary without ferrules	
Visual characteristics	No visible thermal trace under the workpiece		Thermal trace under the workpiece and weld bead visible	
Consumables	Dedicated to capacitive discharge		A wide range of different sizes and shapes available	

# CAPATEK, industrial capacitive discharge (CD) power source



The CAPATEK 66 FV is a capacitive discharge power source equipped with either a contact or retracting gun. It can weld studs from M3 to M8 diameter in copper-plated steel, stainless steel, aluminium and brass, onto thin sheet metal without leaving any marks or distortion. Its innovative and ergonomic gun, with force adjustment, offers extremely fast weld rates. FV technology means it can be used on all single-phase mains power supplies ( between 85 and 265 V).

- **Maximum productivity:**
  - 66 mF capacitor discharge.
  - Recharge time between 0 and 5 s.
  - Wide range of studs available between M3 and M8.
  - Compatible stud lengths: 6 to 40 mm.
- **Intuitive interface:**
  - Voltage adjustment from 50 V to 200 V.
  - Lock settings.
  - Stud counter with adjustable threshold (increase or decrease).
- **1 version with C1 contact gun:**
  - Welding copper & stainless steel studs
  - Adjustable force, ranging from 25 to 100 N, with cover to prevent unintentional adjustments.
- **1 version with G1 retracting gun:**
  - Welding copper-plated steel, stainless steel, aluminium and brass studs
  - Adjustable force, ranging from 20 to 50 N, with cover to prevent unintentional adjustments.
  - Retraction adjustment between 1 and 5 mm, with cover to prevent unintentional adjustments.

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Two year warranty



Product datasheet

## G1 & C1 gun features



Adjustable force, with cover:  
G1 Gun: 20 → 50 N  
C1 gun: 25 → 100 N

G1 Gun:  
Retraction adjustment with cover: 1 → 5 mm

LED for lighting the welding area:  
- LED flashing rapidly: machine is charging.  
- LED flashing slowly: scheduled stud count achieved.

Multi-position

Independent tripod design with bayonet locking for greater gun stability during welding, and easier chuck installation.



## Process benefits

- Thin sheets can be welded without any deformation
- Able to weld studs in copper-plated steel, stainless steel, aluminium and brass
- Equipment is cost-effective
- Small area subject to thermal effects
- Quick-recharge capacitors
- Easy to use
- No bead produced around the weld
- No protective gas required

## Specifications

	CAPATEK 66 FV	
Power supply	110-230 V - 1 ph, 50/60 Hz	
Fuse	16 A	
Capacity	66 mF	
Max. welding diameter	M8	
Voltage range	50-200 V	
Short-circuit current	13 000 A	
Protection class	IP 21	
Dimensions L x W x H	24 × 29 × 39 cm	
Weight	11 kg	
Standard	ISO 669	
Mains cable length	2 m	
Interconnection cable length (Gun)	4 m (C1) / 3 m (G1)	
Weight (Gun)	Contact (C1)	450 g
	Retraction (G1)	660 g

## Product references

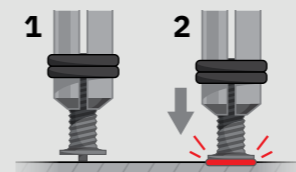
CAPATEK 66 FV - CONTACT Contact gun C1, 4 m + Detachable double earth clamps (4 m) + 1 stud holder (M6)	076747
CAPATEK 66 FV - RETRACTION G1 retraction gun, 3 m + Detachable double earth clamps (3 m) + 1 stud holder (M6)	081000
Retraction gun for CAPATEK + cable (3 m)	080515

Accessory box with stud holders  
(M3, M4, M5, M6 & M8)

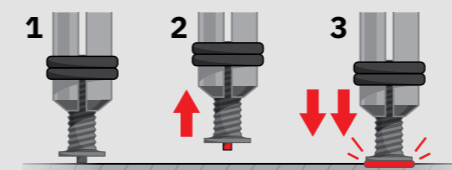


Ø 3 x1	Ø 4 x2	Ø 5 x1	Ø 6 x1	Ø 8 x1
081215	049000	048157	048164	064058
x1	x1	x1	x1	x1

## Welding by contact (C1)



## Welding by retraction (G1)



# ARCPULL, industrial power source for drawn arc welding (DA)



New drawn arc welding power sources, the ARCPULL range can weld all types of studs and concrete anchors up to  $\varnothing$  13 mm (welding with ceramic shielding, with or without gas shielding). The secondary current regulation system is ideal for use in the industrial sector, where arc stability is paramount.

- Suitable for welding a wide range of attachments: Steel or aluminium pulling ring, rivet extraction rod, stud, threaded insert stud, steel or aluminium insulation nail, concrete anchor, etc.
- "Synergic" welding mode (predefined parameters for fast, efficient use) or "expert" welding mode (for complete control of the welding cycle).
- Option to weld without earth clamps for easier implementation (ARCPULL 350 only).
- Integrated program memory for storing up to 99 customised programs.
- Multilingual interface (EN, FR, DE, IT, ES, NL, RU).
- Suitable for on-site extension leads.
- IP33 rating for damp and dusty environments. (350 model)
- Synergy updates via USB cable.



MADE IN FRANCE



Two year warranty



Product datasheet



## Process benefits

- Cost-effective and automatable assembly
- High-speed welding with high output
- Multiple stud styles (plain, threaded, socket, pin, etc.)
- Repeatability and reliability
- Complete weld with good penetration
- Gaseous protection that does not cause contamination

## Specifications

	ARCPULL 350	ARCPULL 700
Power supply	230 V - 1 ph, 50/60 Hz	400 V - 3 ph, 50/60 Hz
Fuse	16 A	20 A
Current range	10-350 A	50-680 A
100% duty cycle (ambient temperature of 40°C)	350 A / 34 V	680 A / 44 V
No-load voltage	100 V	80-95 v
Protection class	IP 33	IP 23
Recommended generator rating	> 15 kW	> 30 kW
Dimensions L x W x H	23 x 31 x 28 cm	32 x 32 x 41 cm
Weight	11 kg	17.4 kg
Standards	IEC 60974-1/10 A	
Mains cable length	6 m	5m
Interconnection cable length (Gun)	3 m	5m
Weight (Gun)	3 kg	3 kg

## Linear motor gun features



- 3 control LEDs:
- Ready to weld
  - Contact OK
  - Fault detected



ARCPULL 700 gun

Power source-controlled linear motor for improved arc height precision.



Change accessories quickly and without the need for any tools, using an easy-to-use locking/ unlocking knob on the welding attachment.

Fork with ceramic support, adapted for high welding speeds and laying concrete anchors.

## Intuitive power source interface



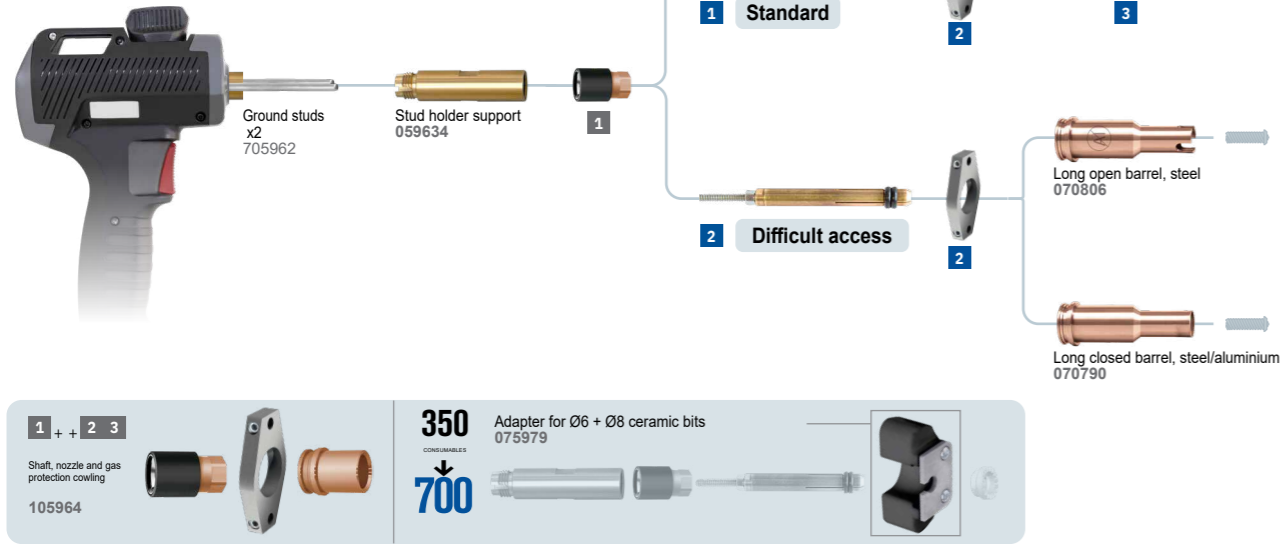
Synergic mode offers simple controls for maximum productivity:

- Type, material, and size of insert
- Gas used
- Sheet thickness

## Product references

ARCPULL 350 INDUSTRY Gun, 3 m	062191
ARCPULL 350 Industry + accessories Gun, 3 m + Accessory box for stud holders + Double clamp earth cable, 3 m	082946
ARCPULL 700 Industry + accessories Gun, 5 m + STANDARD 700 ceramic fork box + Double clamp earth cable, 3 m	062207

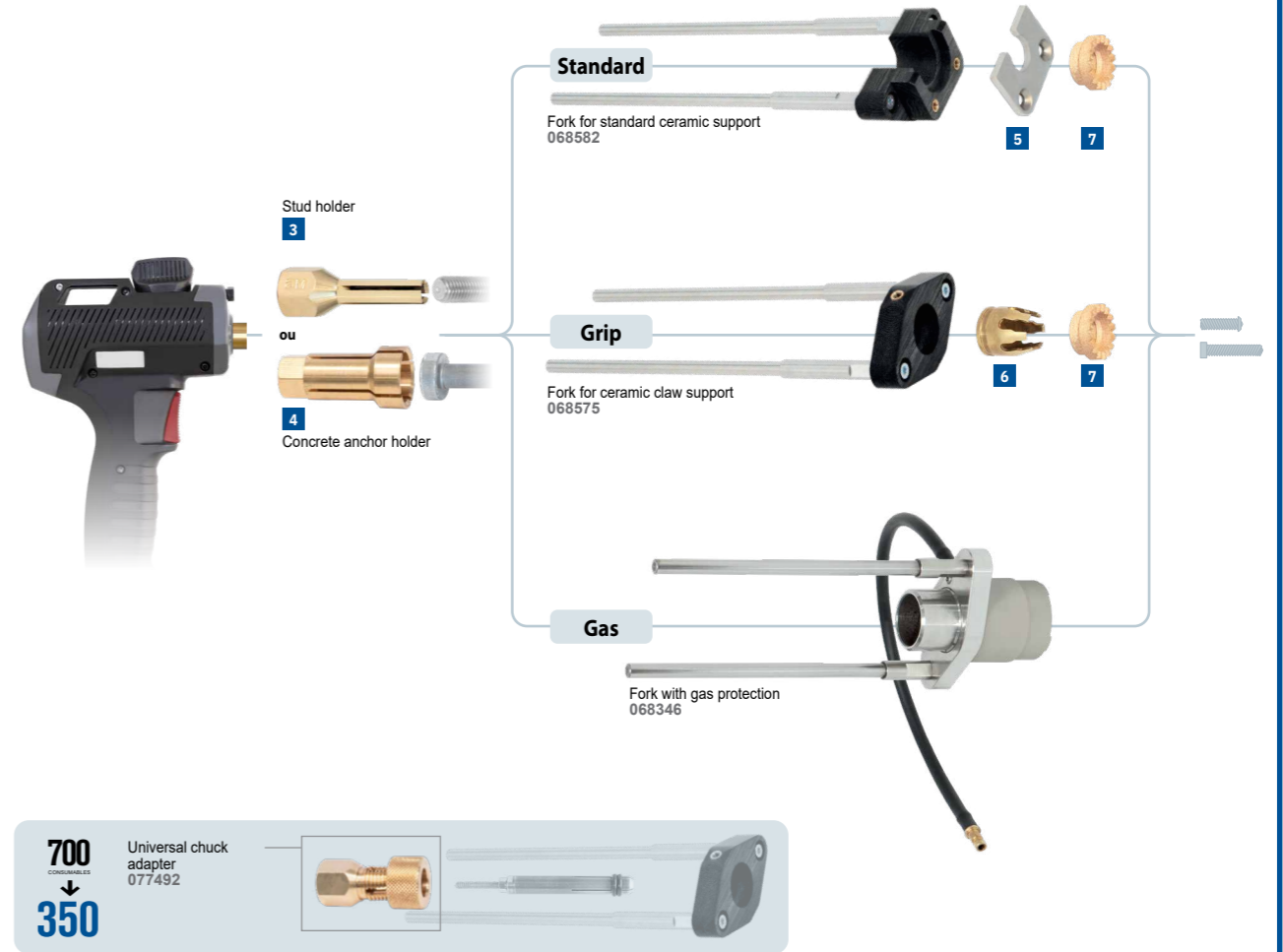
ARCPULL 350



ARCPULL 350 accessory box

Steel studs 059443	Aluminium studs 059436	Stud holder 064591	Stud holder for difficult access 070813
Ø 4 x1	Ø 4 x1	Ø 2 x1	Ø 2 x1
Ø 5 x1	Ø 5 x1	Ø 4 x1	Ø 4 x1
Ø 4, 16 mm x100	AlMg3, Ø 4, 16 mm x100	Ø 5 x1	Ø 4 x1
Ø 5, 18 mm x100	AlMg3, Ø 5, 16 mm x100	Ø 6 x1	Ø 5 x1
self-tapping, Ø 5, 12 mm x100	AlMg3, Ø 6, 16 mm x100	Ø 7.1 x1	Ø 6 x1
self-tapping, Ø 5, 18 mm x100		Ø 8 x1	Ø 8 x1
		3 m, 350 A 070714 x1	3 m, 350 A 070714 x1

ARCPULL 700



ARCPULL 700 accessory box

Complete ceramic ring standard support 700 068322	Complete ceramic ring Grip support 700 068339
Standard	Grip
Ø 6 x1	Ø 6 x1
Ø 8 x1	Ø 8 x1
Ø 10 x1	Ø 10 x1
Ø 12 x1	Ø 12 x1

ACCESSORIES

For ARCPULL 350

1 Standard	2 Difficult access
Ø 2 x1 064065	Ø 4 x1 070752
Ø 3 x1 072251	Ø 5 x1 070769
	Ø 6 x1 070776
Ø 4 x2 049000	Ø 8 x1 070783
Ø 5 x1 048157	
Ø 6 x1 048164	
Ø 7.1 x1 064041	
Ø 8 x1 064058	

Connector rings for Ø 4/5/6 chuck (\*2) 060814

For ARCPULL 700

3 Stud holder	5 Fork for standard ceramic support	7 Fork with gas protection
Ø 4 x1 076167	Ø 6 x1 068445	Ø 6 x500 068520
Ø 5 x1 076174	Ø 8 x1 068445	Ø 8 x500 068537
Ø 6 x1 068391	Ø 10 x1 068445	Ø 10 x500 065680
Ø 7.1 x1 076181	Ø 12 x1 068445	Ø 12 x500 065697
Ø 8 x1 068407		
Ø 10 x1 068414		
Ø 12 x1 068421		

4 Concrete anchor holder	6 Fork for ceramic claw support
Ø 6 x1 068353	Ø 6 x1 068353
Ø 8 x1 068360	Ø 8 x1 068360
Ø 10 x1 068377	Ø 10 x1 068377
Ø 12 x1 068384	Ø 12 x1 068384

CONSUMABLES

Steel

Ø 2,50 mm x100 041561	Ø 4,16 mm x100 059603
Ø 3,100 mm x100 072244	Ø 5,18 mm x100 049383
	Ø 6,20 mm x100 063969
	Ø 8,20 mm x100 063976
Ø 2 x100 064034	
	Ø 5,12 mm x100 049383
Ø 6 (internal Ø4), 20 mm x100 063990	Ø 5,18 mm x100 049420
Ø 7.1 (internal Ø5), 20 mm x100 064003	
	type DD - ISO 13918
type SD - ISO 13918	Ø 6,20 mm x500 068506
Ø 10,100 mm x250 065642	Ø 8,20 mm x500 068513
	Ø 10,20 mm x500 065659
	Ø 12,50 mm x500 065673

Alu AlMg3

Ø 4,16 mm x100 059573
Ø 5,16 mm x100 059580
Ø 6,16 mm x100 059597
Ø 8,16 mm x100 063983
Ø 6 (internal Ø4), x100 064010 20 mm
Ø 7.1 (internal Ø5), x100 064027 20 mm

Stainless steel

type DD - ISO 13918
Ø 6,20 mm x500 068469
Ø 8,20 mm x500 068476
Ø 10,20 mm x500 068483
Ø 12,50 mm x500 068490
Stainless steel/SSL
Ø 4,50 mm x100 064607
Ø 5,50 mm x100 070745



## CAPATEK - ACCESSORIES & CONSUMABLES

### CONSUMABLES FOR CAPATEK

#### Alu AlMg3

ø 4, 12 mm	x200 050273
ø 4, 12 mm	x1000 050129
ø 5, 12 mm	x200 048140
ø 6, 12 mm	x200 048133

#### Alu silicium

ø 4, 12 mm	x200 050280
ø 4, 12 mm	x1000 050136
ø 5, 12 mm	x200 048126
ø 6, 12 mm	x200 048003

#### Acier cuivré

ø 6, 16 mm	x200 081345
ø 8, 20 mm	x1000 081352

### CENTRING KIT FOR CAPATEK



083110

#### Anti-spatter/noise suppression nozzle

- Makes it easier to centre the stud using a template.
- Makes it easier to weld in hard-to-reach areas.
- Noise reduction (-20db).
- Reduces spatter.
- Easy to fit thanks to the quarter-turn locking system.
- Barrel diameter: 30 mm.

#### For a good seal:

- The gun must be upright.
- Projections inside the nozzle must be cleaned regularly with a cloth.



083127

#### Open nozzle

- Makes it easy to centre the stud using a template.
- Makes welding easier in hard-to-reach areas.
- Easy to fit thanks to the quarter-turn locking system.
- Diameter of barrel: 30 mm.

## OUR DEMONSTRATION VIDEOS



CAPATEK



ARCPULL 700



ARCPULL 350



INVEST IN THE FUTURE



Fabricant français  
depuis 1964



## GYS FRANCE

### SIÈGE SOCIAL

1 rue de la Croix des Landes  
CS 54159  
53941 Saint-Berthevin - Cedex  
Laval - France  
Tél +33 2 43 01 23 60  
E-mail [service.client@gys.fr](mailto:service.client@gys.fr)



ZI, 134 bd des Loges  
53941 Saint-Berthevin  
Laval - France

### CENTRE LOGISTIQUE

2 Rue Jean Dausset  
53810 Changé - France  
Tél +33 2 43 01 54 33



## GYS GERMANY

Professor-Wieler  
Straße 11  
52070 Aachen  
Deutschland

Tél +49 241/189-23-710  
Fax +49 241/189-23-719  
E-mail [aachen@gys.fr](mailto:aachen@gys.fr)



## GYS UK

Unit 3 - Great Central Way  
Rugby - Warwickshire  
CV21 3XH  
United Kingdom

Tél +44 1926 338 609  
Fax +44 1926 429 764  
E-mail [uk@gys.fr](mailto:uk@gys.fr)



## GYS ITALIA

Via Porta Est, 7  
30020 Marcon  
VE Italia

Tél +39 041 53 21 565  
E-mail [italia@gys.fr](mailto:italia@gys.fr)



## GYS IBÉRICA

Avenida Pirineos 31  
Nave 9  
San Sebastian de los Reyes  
28703 Madrid  
España

Tél +34 917 409 790  
E-mail [iberica@gys.fr](mailto:iberica@gys.fr)



## GYS CHINA

Lot N°15  
6666 bd Songze  
201706 Qingpu  
Shanghai  
China

Tél +86 6221 4461  
Fax +86 5226 0067  
[www.gys-china.com.cn](http://www.gys-china.com.cn)  
E-mail  
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