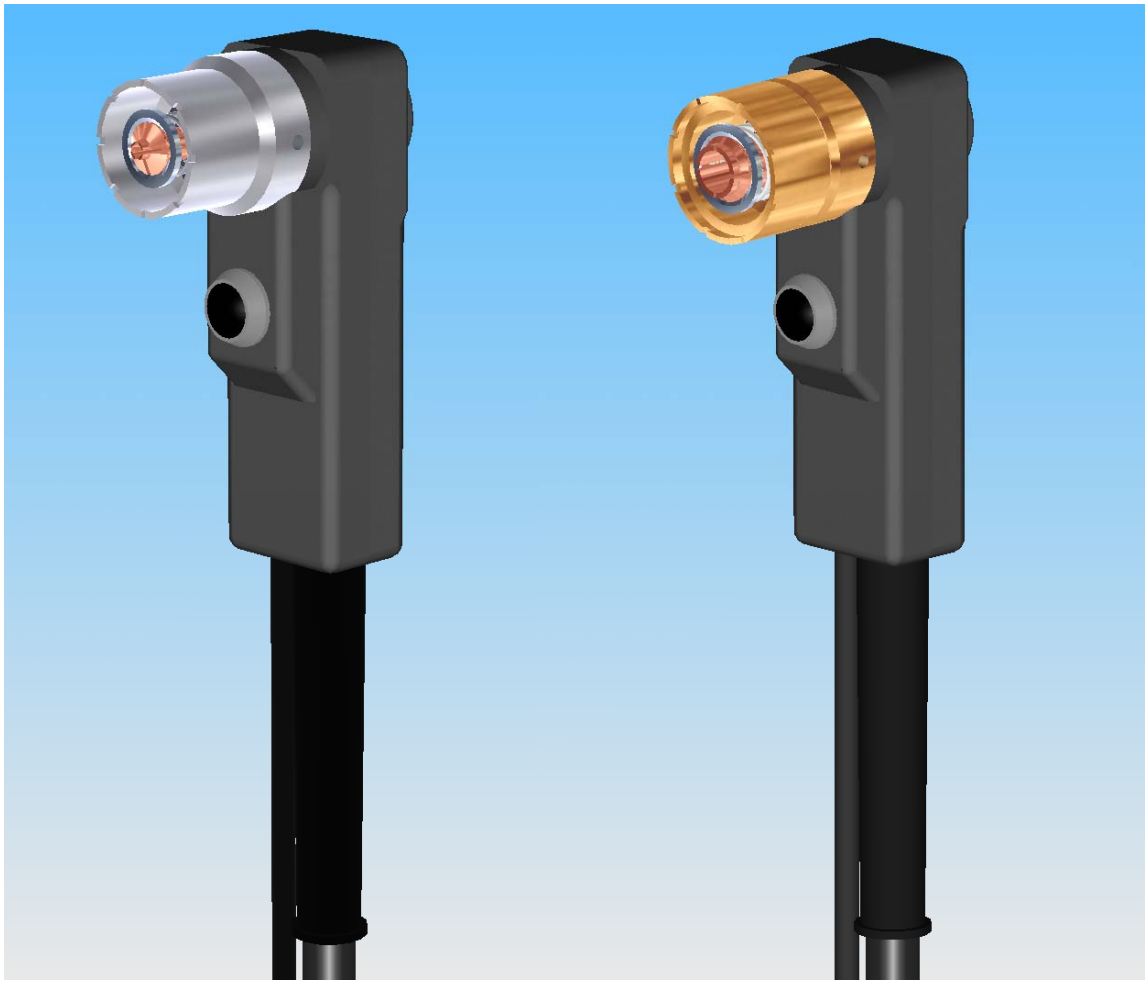
TAYLOR STUDWELDING SYSTEMS LIMITED.

OPERATING MANUAL FOR CAPACITOR DISCHARGE MINI PISTOL AND MINI PISTOL +



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GENERAL INFORMATION

MANUFACTURERS DETAILS

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PURPOSE AND CONTENT OF THIS MANUAL

This manual has been written for :

- ☞ The operator of the welding machine.
- ☞ The personnel of the final customer responsible for the installation and operation of the machine.

This manual contains information on :

- ☞ Installation and connection
- ☞ Operation.
- ☞ Technical data.
- ☞ Spare parts.
- ☞ Accessories.

FURTHER INFORMATION

Should you require additional technical information, please contact us directly (details above) or our local agent / distributor (details of agents etc. can be obtained from us).

This manual contains important information which is a pre-requisite for safe operation of the equipment. The operating personnel must be able to consult this manual. In the interests of safety, make this manual available to your personnel in good time.

If the equipment is sold / passed on, please hand over this manual to the new owner. Please immediately inform us of the name and address of the new owner, in case we need to contact him regarding the safety of the device.

Please read this manual carefully before installation of the machine.

Please especially observe the safety instructions.

INTRODUCTION

INTRODUCTION

The complete range of Taylor Studwelding Systems Capacitor Discharge units are compact, portable Stud Welding equipment's. The units are specifically designed to enable a small diameter range of ferrous and non-ferrous weld studs to be welded to light gauge, self-finish or pre-coated materials, in most cases with little or no reverse marking.

A standard equipment consists of a control unit, a welding pistol and the necessary interconnecting cables and accessories.

THE PROCESS

Capacitor Discharge stud welding is a form of welding in which the energy required for the welding process is derived from a bank of charged capacitors. This stored energy is discharged across the gap between the two surfaces to be welded as they are propelled towards each other. The arc produced heats the two surfaces, melting a thin film of metal on each surface and the propelling force closes the gap between the two faces, thus forming a weld.

In contact welding the stud to be welded is forced by spring pressure on to the plate. At this point the arc gap between the two components is maintained by a small pip on the welding face of the stud. On initiation of the high current pulse from the capacitors, this pip vaporises and an arc is drawn between the work piece and the stud. The heat from this arc melts the base of the stud and the area of the work piece directly beneath the stud, whilst the spring pressure from the pistol accelerates the towards the work piece. Within 3 to 4 milliseconds the stud hits the work piece and the arc is extinguished. The kinetic energy contained in the moving stud and the remaining spring pressure, forge the molten parts together to form a weld.

SAFETY

PROTECT YOURSELF AND OTHERS !

Read and understand these safety notices.

1. ELECTRICAL

No portion of the outer cover of the welding controller should be removed by anyone other than suitably qualified personnel and never whilst mains power is connected. ALWAYS disconnect the mains plug from the socket.

RISK TO LIFE !!!

BE AWARE ! Capacitors store electrical energy. Check for residual charge before carrying out any internal maintenance.

DO NOT ! use any fluids to clean electrical components as these may penetrate into the electrical system

Installation must be according to the setting up procedure detailed on page 6 of this manual and must be in line with national, regional and local safety codes.

2. FIRE

During welding small particles of very hot metal are expelled. Ensure that no combustible materials can be ignited by these.

3. PERSONNEL SAFETY

Arc rays can burn your eyes and skin and noise can damage your hearing. Operators and personnel working in close proximity must wear suitable eye, ear and body protection. Fumes and gases can seriously harm your health. Use the equipment only in a suitably ventilated area. If ventilation is inadequate, then appropriate fume extraction equipment must be used. Hot metal spatter can cause fire and burns. Appropriate clothing must be worn. Clothing made from, or soiled with, combustible materials must NOT be worn. Have a fire extinguisher nearby and know how to use it. Magnetic fields from high currents can affect heart pacemakers or other electronically controlled medical devices. It is imperative that all personnel likely to come into the vicinity of any welding plant are warned of the possible RISK TO LIFE before entering the area.

4. MAINTENANCE

All cables must be inspected regularly to ensure that no danger exists from worn or damaged insulation or from unsound electrical connections. Special note should be made of the cables close to the pistol, where maximum wear occurs. As well as producing inconsistent welds, worn cables can overheat or spark, giving rise to the risk of fire.

5. TRAINING

Use of the equipment must limited to authorised personnel only who must be suitably trained and must have read and understood this manual. This manual must be made available to all operators at all times. Further copies of this manual may be purchased from the manufacturer. Measures must be taken to prevent the use of this equipment by unauthorised personnel.

6. INSTALLATION

Ensure that the site chosen for the equipment is able to support the weight of the equipment and that it will not fall or cause a danger in the course of its normal operation. Do not hang connecting cables over sharp edges and do not install connecting cables near heat sources or via traffic routes where people may trip over them or they may be damaged by the passage of vehicles (forklifts etc.).

7. INTERFERENCE

During welding operations, intense magnetic and electrical fields are unavoidably produced which may interfere with other sensitive Electronic equipment.
All Taylor Studwelding equipment is designed, manufactured and tested to conform the current appropriate European standards and directives regarding electromagnetic emissions and immunity and as such is safe to use in any normal environment.

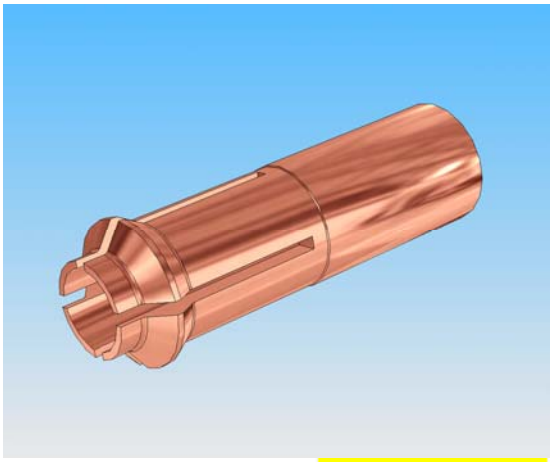
8. DISPOSAL

The equipment either wholly or any of its component parts may be disposed of as part of general industrial waste or passed to a scrap merchant. Non of the components used in the manufacture are toxic, carcinogenic or harmful to health.

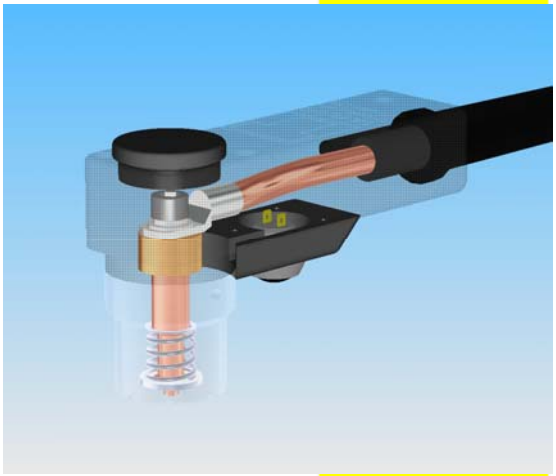
SETTING UP

SETTING UP

Select the required chuck for the diameter of stud you need to weld (a selection table can be found on page 10 of this manual). Note that there is no stud depth backstop as in a standard chuck. This is because this type of chuck is designed to allow the stud flange to rest against the front face.

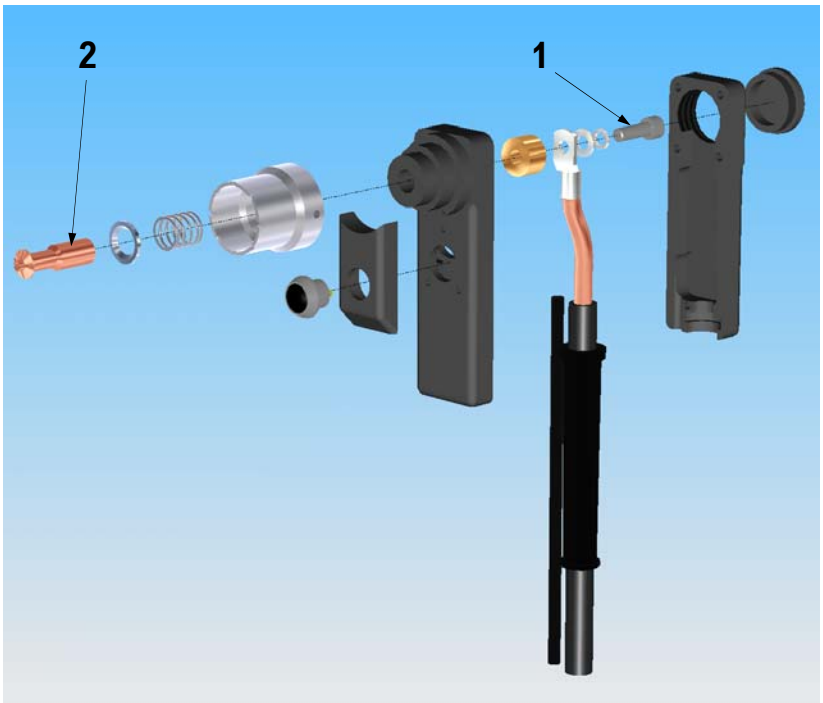


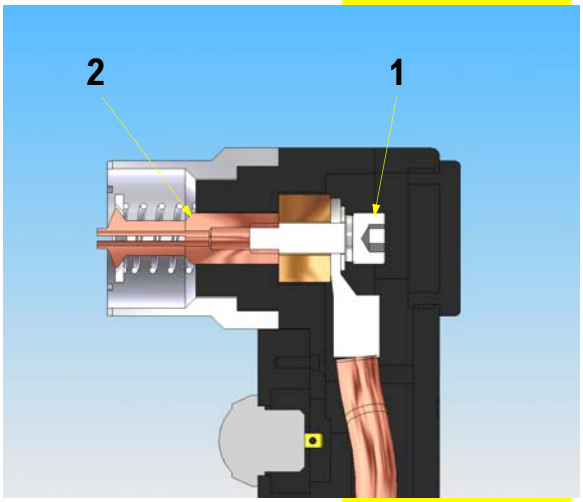
As part of the design of this pistol, the chuck is effectively the shaft of the pistol. This helps reduce overall length, but makes fitting/changing the chuck a more complicated procedure than in a normal CD pistol.



As can be seen from the explosion and cross-sectional views below one central screw holds everything together. Failure to properly tighten the screw (1) into the chuck (2) may cause internal arcing and subsequent failure.

Please note that due to this, failures of this type are regarded as improper maintenance and are not covered by the product warranty.





SETTING UP

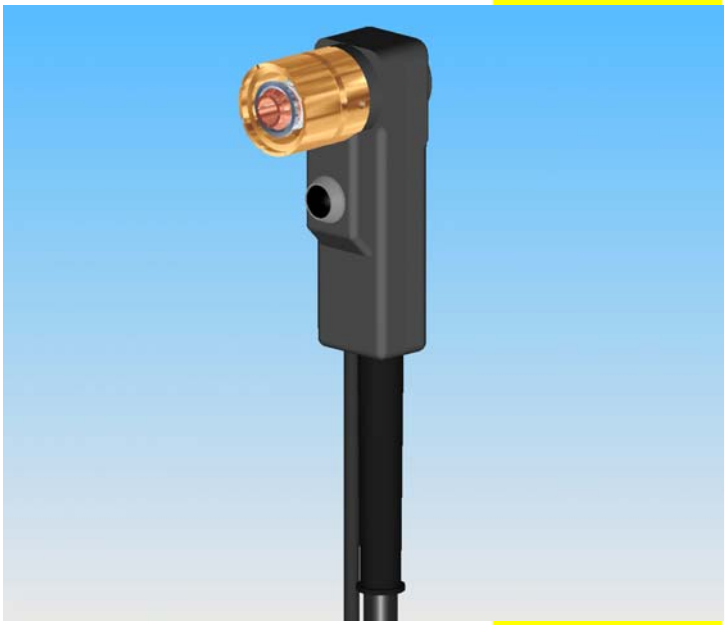
SETTING UP

The standard mini pistol is designed to weld a range of studs covering the diameters M3 to M8 in lengths from 4 to 20 mm.

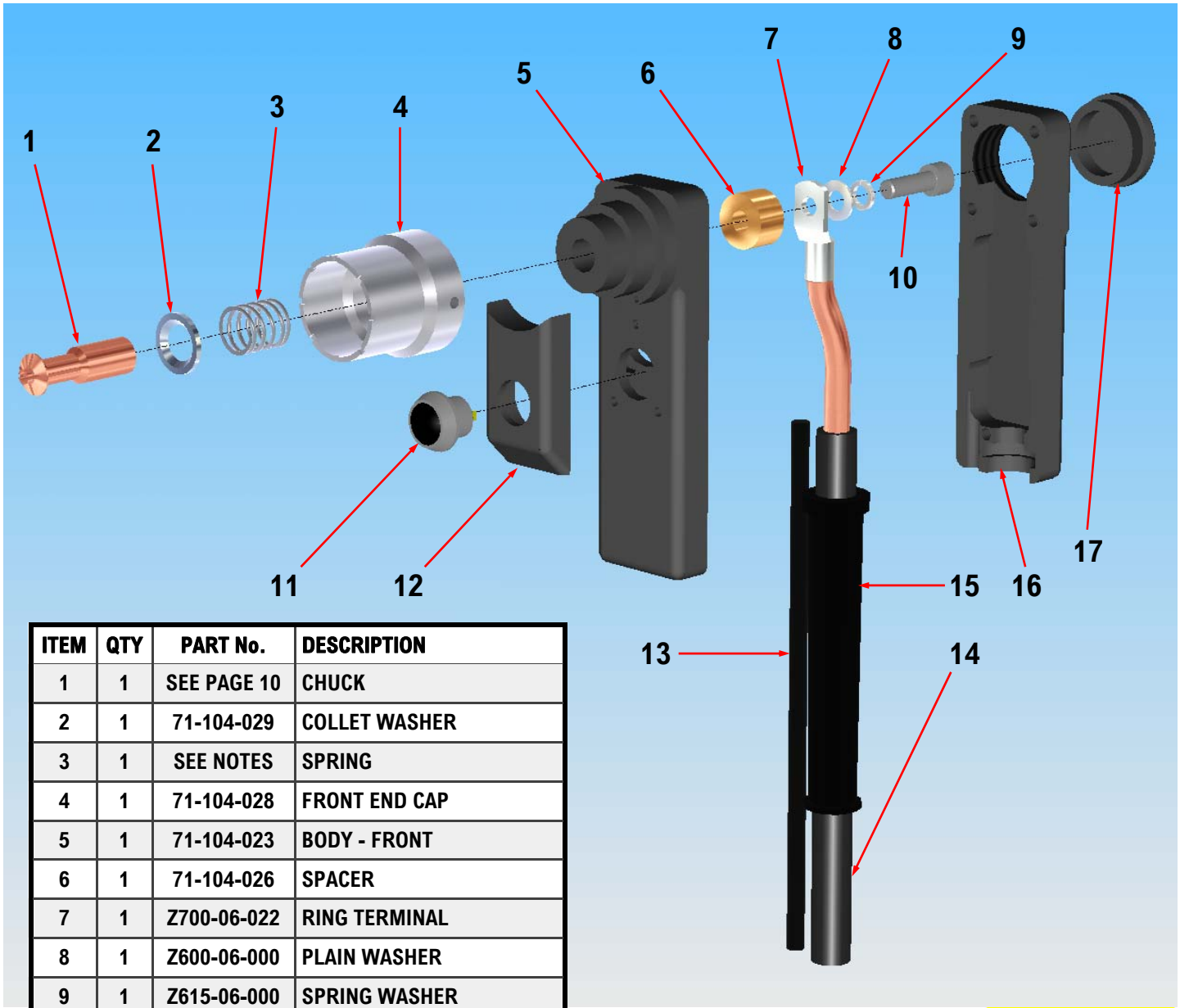
It is possible to weld longer studs but this would compromise the overall length of the pistol which may cause issues when attempting to weld in tight spaces also because it would be impossible to properly seat the nose cone, it would not be possible to ensure that studs have been welded perpendicular to the component surface.

A mini pistol + is available to weld studs of diameter M10 with an adjustable nose cone allowing lengths up to 30 mm to be welded.

The method of changing/fitting the chuck is the same for both pistols and as such is covered by the same provisions as specified on the previous page.



EXPLOSION & PARTS LISTING



ITEM	QTY	PART No.	DESCRIPTION
1	1	SEE PAGE 10	CHUCK
2	1	71-104-029	COLLET WASHER
3	1	SEE NOTES	SPRING
4	1	71-104-028	FRONT END CAP
5	1	71-104-023	BODY - FRONT
6	1	71-104-026	SPACER
7	1	Z700-06-022	RING TERMINAL
8	1	Z600-06-000	PLAIN WASHER
9	1	Z615-06-000	SPRING WASHER
10	1	Z100-06-020	SCREW
11	1	71-104-019	TRIGGER SWITCH
12	1	71-104-025	SWITCH HOUSING
13	3.5	71-300-010	CONTROL CABLE - m
14	3	71-300-002	WELD CABLE - m
15	1	71-101-034	CABLE SUPPORT SLEEVE
16	1	71-104-024	BODY - REAR
17	1	71-104-027	REAR END CAP
18	1	71-101-030	CONTROL PLUG
19	7	71-101-032	CABLE TIE
20	1	SEE NOTES	WELD PLUG

ITEM 3 IS DEPENDENT ON MATERIAL BEING WELDED FOR

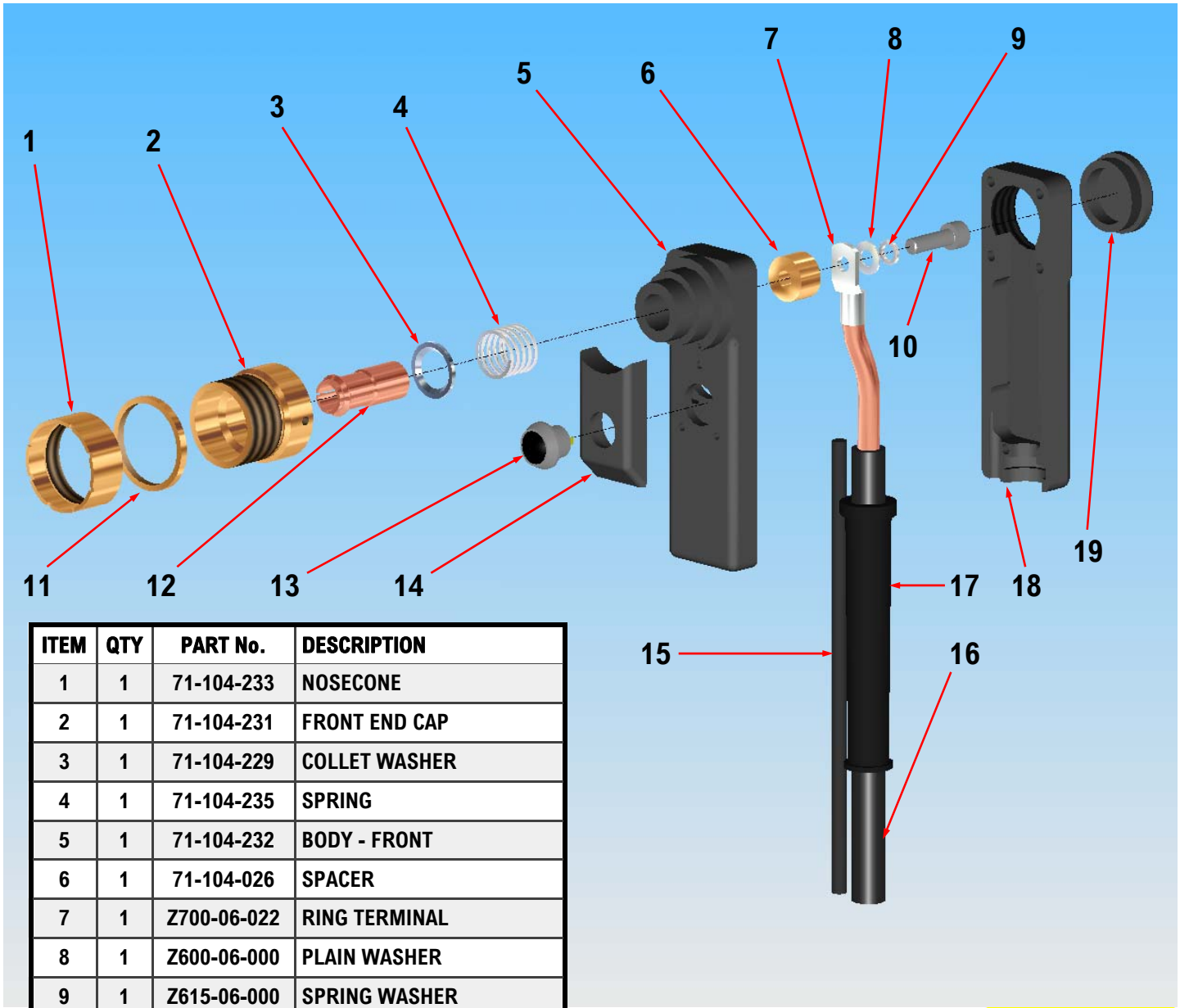
STEEL USE	71-104-030
ALUMINIUM USE	71-104-031

ITEMS 18, 19 & 20 NOT SHOWN

ITEM 20 IS DEPENDENT ON WELDING CONTROLLER MODEL FOR

CD-M USE	81-101-051
CD200 USE	71-101-031

EXPLOSION & PARTS LISTING



ITEM	QTY	PART No.	DESCRIPTION
1	1	71-104-233	NOSECONE
2	1	71-104-231	FRONT END CAP
3	1	71-104-229	COLLET WASHER
4	1	71-104-235	SPRING
5	1	71-104-232	BODY - FRONT
6	1	71-104-026	SPACER
7	1	Z700-06-022	RING TERMINAL
8	1	Z600-06-000	PLAIN WASHER
9	1	Z615-06-000	SPRING WASHER
10	1	Z100-06-020	SCREW
11	1	71-104-234	LOCKING RING
12	1	SEE PAGE 10	CHUCK
13	1	71-104-019	TRIGGER SWITCH
14	1	71-104-025	SWITCH HOUSING
15	3.5	71-300-010	CONTROL CABLE - m
16	3	71-300-002	WELD CABLE - m
17	1	71-101-034	CABLE SUPPORT SLEEVE
18	1	71-104-024	BODY - REAR
19	1	71-104-027	REAR END CAP

ITEMS 20, 21 & 22 NOT SHOWN

ITEM 22 IS DEPENDENT ON WELDING CONTROLLER MODEL

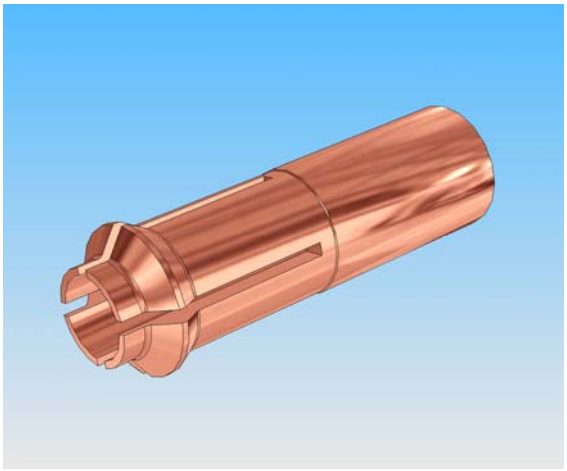
ITEM	QTY	PART No.	DESCRIPTION
20	1	71-104-030	CONTROL PLUG
21	7	71-101-032	CABLE TIE
22	1	71-101-031	WELD PLUG - CD200
or	1	81-101-051	WELD PLUG - CD-M

ACCESSORIES

CHUCKS

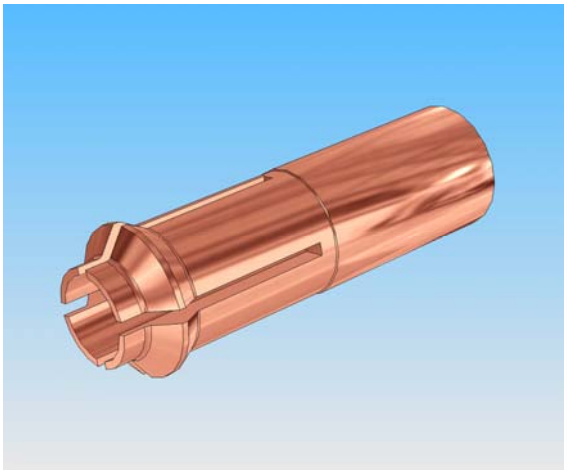
MINI PISTOL

DESCRIPTION	PART NUMBER
M3 CHUCK	40-17714
M4 CHUCK	40-17722
M5 CHUCK	40-17730
M6 CHUCK	40-17749
Ø7.1 CHUCK	40-17854
M8 CHUCK	40-17862



MINI PISTOL +

DESCRIPTION	PART NUMBER
M10 CHUCK	71-104-210



EC DECLARATION OF CONFORMITY

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STATEMENT : This is to certify that the machinery listed below is designed and manufactured in conformance with all applicable health and safety regulations.

This statement is invalid if any modifications are carried out on the machinery without the prior written approval of Taylor Studwelding Systems Ltd.

DESCRIPTION OF MACHINE	:	Capacitor Discharge Handtool
TYPE	:	CD Mini Pistol
PART NUMBER	:	99-101-026

Applicable EC guidelines and corresponding standards:

- Low voltage guideline 2006/95/EC:
  - EN60204-1 Safety of machinery - Electrical equipment of machines.

- EMC guidelines 2004/108/EC (electromagnetic compatibility):
  - EN50081 Electromagnetic compatibility - Generic emission standard
  - EN50082 Electromagnetic compatibility - Generic immunity standard
  - EN50199 Electromagnetic compatibility (EMC) Product standard for Arc welding equipment

- Machine guidelines 2006/42/EC
  - EN60974-1 Arc welding equipment : Electromagnetic compatibility (EMC) requirements

SIGNED

DAVID TAYLOR
MANAGING DIRECTOR

CE