

# Operators Manual

# ULTIMA-TIG



51129701 X V1 (4381) 2003-06-16

# ULTIMA-TIG

## INSTRUCTION MANUAL

EU statement of compliance

hereby declare that

Machine: **ULTIMA-TIG**  
Type: **UT 03 / 04**  
Serial No.:  
Year of production: **2014**

is produced in accordance with the provisions of the Commission's Directive of 14<sup>th</sup> June 1989 on harmonisation of national legislations on machinery (98/37/EF), low-voltage directive 73/23/EF (1973) changed through directive 93/68/EF (1993) and EM C-directive 89/336 with particular ULTIMA-TIG is developed and produced according to following international norms:

EN	61029
EN	61000-6-4
EN	61000-6-2

The CE-mark was used first time in 2003.

Person responsible: Name: /

Date: 11<sup>th</sup> June, 201\_

Signed: \_\_\_\_\_

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### IMPORTANT SAFETY INSTRUCTIONS

When installing and operating the machine the safety rules enclosed should be read and strictly observed.

This instruction manual and the accompanying supplier's instruction for use must be accessible at all times to staff engaged in the installation, operation and maintenance of the machine.

## 1. General machine description

ULTIMA-TIG is a patented grinder with a diamond wheel for **wet grinding** of tungsten electrodes. This unique and patented construction gives together with the well-known benefits of wet grinding, many advantages to obtain a perfect welding result.

The special grinding liquid in the sealed grinding chamber ensures that no contaminated dust particles will be emitted into the surroundings. The grinding liquid also ensures no discoloration of the tungsten electrode due to the heat, which has a negative effect on the welding process.

A fine-grained grinding in the length-wise direction of the electrode is ensured due to the unique construction of the tungsten electrode holder and feeder together with the tangential grinding on the surface of the diamond wheel, This is important for the ignition capability of the tungsten electrode.

To ensure minimal grinding of the tungsten electrode (0,3-0,5 mm), a combined electrode stick-out and locking device is located on the front of the machine. The grinding angle can be infinitely adjusted from 7,5 to 90 degrees (half angle) inclusive. In the 90-degree position the tip of the electrode can be removed to the required amount using the micrometer screw. This is of importance to the electrode's tool life at high welding currents.

A container for collection of toxic dust is placed under the machine. This container is easily replaced.

## 2. Delivered with the machine

Upon receipt please check that the following items are included in the package:

- ULTIMA-TIG machine with a diamond wheel
- Instruction manual and datasheet for the grinding liquid
- Container with grinding liquid
- Tungsten electrode holder
- Electrode clamp  $\varnothing 1,6\text{mm}$
- Electrode clamp  $\varnothing 2,4\text{mm}$
- Electrode clamp  $\varnothing 3,2\text{mm}$

Ultima-TIG special also has electrode holders for 4.8,5.6 and 6.4mm

## 3. Initial operation and transport

Place the ULTIMA-TIG on the enclosed table and fasten the machine. Please ensure that the table is fixed.

The ON/OFF switch must be in the “**OFF**” position.

Connect the U LTIMA-TIG to the mains voltage stated on the type label. Use single-phase power supplied with earth.

### **The ULTIMA-TIG must not operate without grinding liquid!!**

The ULTIMA-TIG **does not** contain grinding liquid on delivery. Before starting the machine grinding liquid **must** be applied. Take out the drain plug ( 8) and fit the enclosed liquid container (39) to the machine. Place the filler neck on to the enclosed container. Feed the ULTIMA-TIG with the grinding liquid through the hose (29) until the correct liquid level has been reached (please see mark on the inspection cover frame (7)). There is sufficient liquid in the grinding chamber when the diamond wheel is seen to pump the fluid as the machine is switched on.

For safety reasons the grinding liquid must be drained from the ULTIMA-TIG into a sealed closed container during transport.

ULTIMA-TIG can be operated in locations with surrounding temperatures ranging from -10°C to +40°C and a relative humidity up to 50% at 40°C and 90% at 20°C.

The machine has been tested in accordance to protection class IP21.

## **4. Operational elements**

- Current and main switch
- Carry handles
- Degree scale
- Electrode holder
- Stick-out adjustment
- Grinding fluid container 250 ml
- Micrometer screw to flatten the tip of the electrode

## **5. Safety procedures**

- Never use the product if the grinding wheel is damaged
- Use only grinding wheels recommended by Inelco A/S
- Only use the product when all parts have been assembled

## **6. Fastening of the electrode in the electrode holder**

Place the electrode clamp fitting the diameter of the tungsten electrode into the electrode holder. Push the electrode through the electrode clamp and into the electrode holder. Use your fingers to tighten the electrode lightly, please ensure that it may still be able to slide in the electrode holder. The electrode must be extended approx. 2 cm from the clamp. Then place the electrode and the holder into the stick-out setting(10) placed below on the right front side until it stops and tighten the electrode with a



smooth turn of the electrode holder to the right. The electrode clamp has a hexagon which fits the hole of the stick-out setting. The electrode may only be fastened so tight, that it does not slide in the electrode clamp. If the electrode is fastened too tightly the clamp may be damaged. A regulation screw on the back of the stick-out-setting makes it possible to determine the length of the electrode you wish to grind. If you remove the regulation screw, more electrode will be ground and visa versa. **The manufacturer has set the regulation screw to grind approx. 0,3 mm in order to obtain maximum number of grindings per electrode as possible. A minimum length of 30 mm of the electrode means that you can re-grind the electrode 450 times.** It is often not necessary to break off metal drops on the electrode. The metal drops do not alloy with the electrode. They will be removed during grinding and a new tungsten surface which is necessary for a good ignition of the electrode and a stable arc. In case a clean tungsten surface is not achieved the length of the stick-out can be extended. **It is necessary to adjust the stick-out as the diamond wheel is used up.**

## 7. Setting the grinding angle

The grinding angle is set by aligning the pointer (24) on the electrode guide (22) to the required number on the degree scale. The electrode guide is then locked in position using the tightening screw (20). After inserting the tungsten electrode into the electrode holder push it into the electrode guide until the electrode reaches the diamond wheel. **Start the machine using the ON /OFF switch (35) and WAIT FOR THE WHEEL TO REACH FULL SPEED.** Turn the electrode holder, gently pushing the electrode against the diamond wheel. When the shoulder of the electrode holder meets the face of the electrode guide the grinding is completed and the electrode holder is withdrawn from the guide tube.

**It is only necessary to press the electrode holder lightly against the diamond wheel, as the weight of the electrode holder gives sufficient pressure by it self.**

**Do not remove the electrode holder from the machine until the wheel stops.**

Remove the electrode from the electrode holder by placing the electrode holder into the stick-out setting (10) and turn it left. Remove the electrode.

## 8. Maintenance

**The ULTIMA-TIG should always be filled with sufficient grinding liquid to ensure optimum collection of all grinding dust as well as adequate cooling of the grinding process. The correct liquid level is between the minimum mark and 3mm above. Please check the liquid level frequently and top up the level of liquid as necessary. Only the original ULTIMA-TIG grinding liquid ensures the optimum lifetime of the diamond wheel.**

**Heavily polluted (ie:FULL)grinding liquid or receivers containing grinding dust must be deposited according to national regulations. Remember, Thoriated Tungsten is mildly radioactive! (In most countries, burying in landfill is acceptable.)**

**After each 10-15 hrs grinding (say 2500-3500 points), the grinding chamber should be rinsed thoroughly for grinding residue and dust. Tap off the grinding liquid through the hose(29) and retain it in a deposit bottle for re-use. Liquid tank(39) is removed. Remove screws(21A), inspection cover frame(7) and plastic inspection cover(6), and wash out the grinding chamber with water. Leave the grinding residues safe in the liquid tank! Then replace inspection cover frame(7),the liquid tank (39) and refill grinding**

liquid to appropriate level. Please ensure that the person cleaning the ULTIMA-TIG wears the appropriate safety gear e.g. rubber gloves and protection glasses. Mains cables should be inspected at regular intervals, and should only be replaced by a qualified electrician.

## 9. Replacement of the grinding wheel

Please follow the procedure below when disassembling the machine:

- The power to the ULTIMA-TIG **must** be turned off – pull the plug
- The grinding liquid is tapped off, screws (21A), plastic inspection cover (6) and cover frame (7) are removed. The wheel (4) wheel is now accessible. Remove the grinding chamber as shown on Page 8A  
Unlock the **left-hand threaded** centre screw. Remove the retaining disc (26).  
Remove the old wheel and reassemble with a new one (4).

## 10. Field of application

The grinder is only to be used for grinding of tungsten electrodes.

## 11. Technical specifications

NEUTRA grinder patent application No. 9500123.

Current class: (single-phase alternating current) 1x110V or 1x220-240V AC

Protection isolated without protection cable 10-16A UMEC 97/66/68-CEE (7) VII

## 12. Training

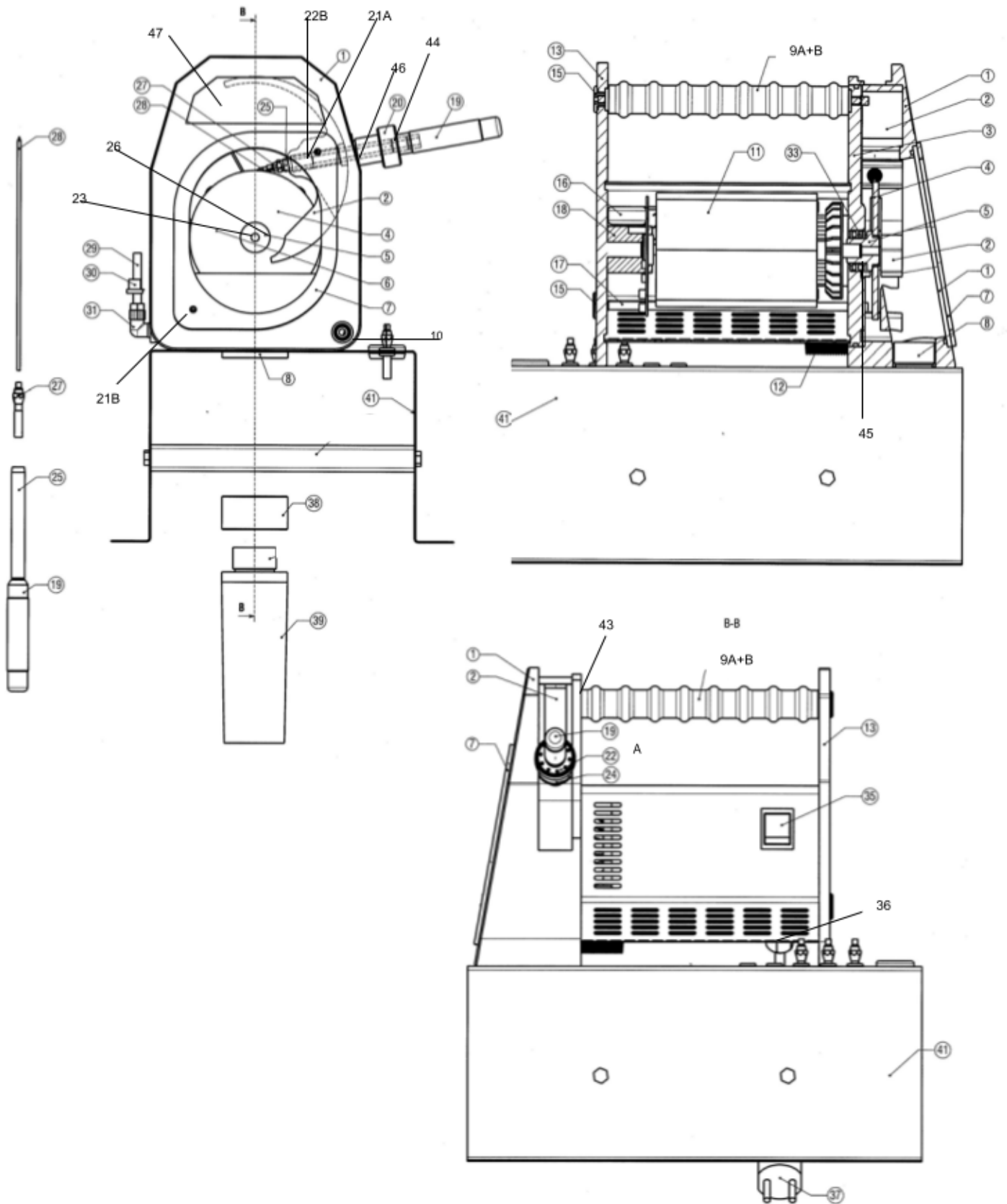
No special education is required to operate the ULTIMA-TIG. However, persons who are to operate the ULTIMA-TIG machine should read the instruction manual thoroughly beforehand and to have received basic training in use of the machine.

### 13. Reservedelsliste • Spare Parts List • Ersatzteilliste

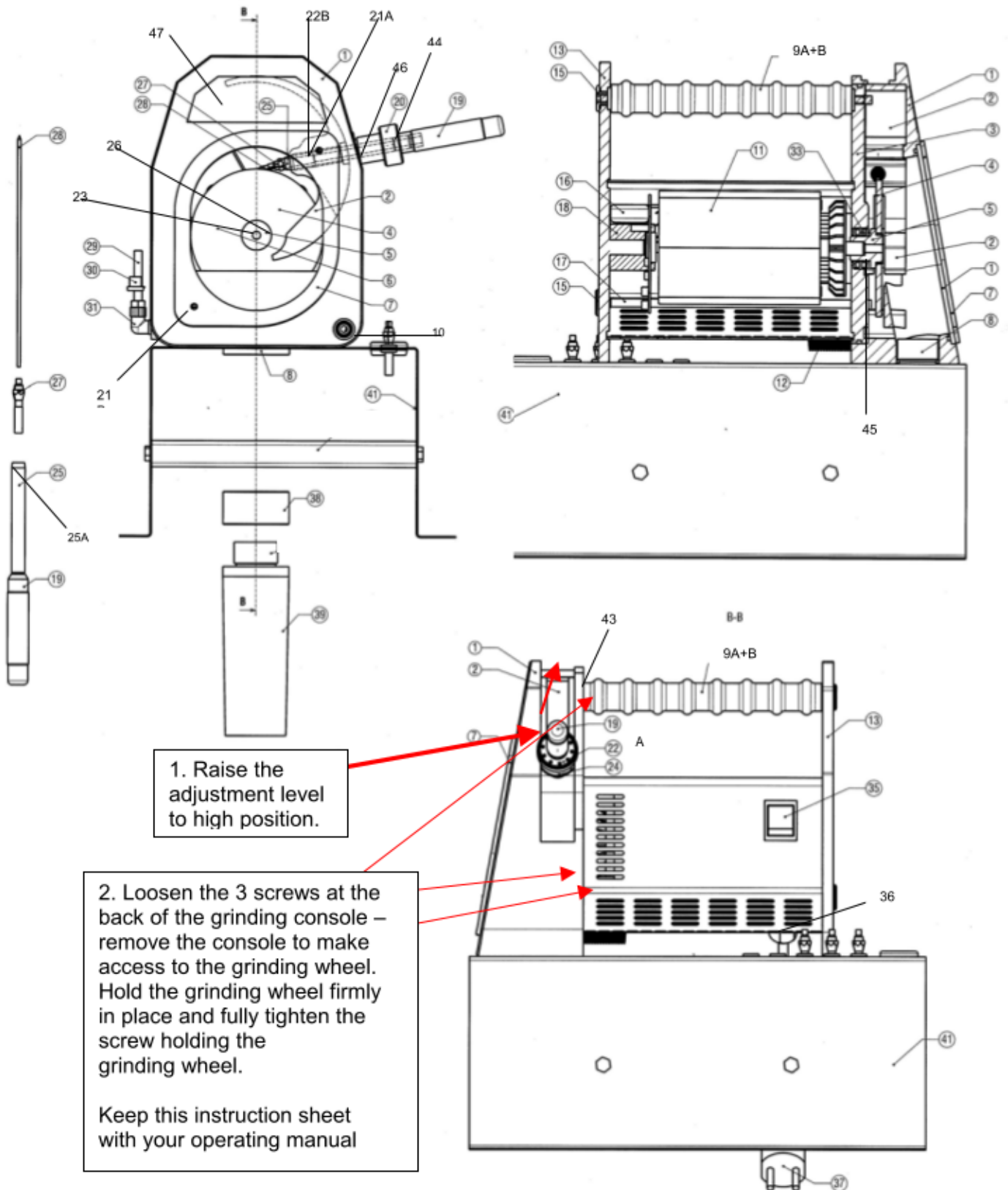
Pos. No.	(DK) Betegnelse	(GB) Description	(D) Bezeichnung	Varenr. Article No. Warennr.
Ultim	a-TIG Wolframsliber	Ultima-ITG Wolframgrinder	Ultima-TIG Wolframschleifmaschine	88897022
	Væskebeholder 250 ml	Liquid container 250ml	Flüssigkeitsbehälter 250ml	75491200
1 Slibek	onsol	Grinding konsole	Schleif-Konsole	44520000
2	Vinkelindstiller	Angle adjust unit	Winkeleinstellungseinheit	44520001
3	Bagplade for konsol	Rear plate for konsole	Rückplatte für Konsol	44520002
4 Diam	antskive	Grinding disc	Schleif-Scheibe	44490512
5	Bøsning for skive	Bush for disc	Buchse für Scheibe	44520017
6	Skueglas	Plastic Inspection Cover	Schauglas	44490700
7	Ramme for glas	Frame	Glasrahmen	44490901
8 Bundpr	op	Drain plug	Abläßschraube	44491120
9A Bær	ehåndtag	Handle	Tragehandgriff	44520012
9B	Gummi for håndtag	Rubber for handle	Gummi für Handgriff	44520013
10	Bolt for Stick-out	Bolt for Stick-out	Bolt für Stick-out	44520024
11 Motor	230V-50/60Hz	Motor	Motor	17809004
12	Fjeder for stick-out	Spring for stick-out	Feder für Einstellschablone	44520028
13	Bagplade	Rear plate	Rückplatte	44520003
15 Mø	belhoved	Mounting screw	Möbelschraube	44491711
16 Sty	reprint	Control PCB	Steuer-Leiterplatte	71618967
17 G	evindstang	Thread bar	Gewindestange	44520011
18 Lej	ehus	Bearing housing	Lagergehäuse	44520029
19 Sk	aft	Shaft	Stiel	44520020
20	Spændeskruer med anslag	Tightening screw	Spanschraube mit Anschlag	44520004
21A	Spændeskruer for skueglas	Screw for inspection cover	Schraube für Schauglas	40320410
21B	Skive for spændeskruer	Dome washer for screw	Scheibe für Schraube	41512304
22A	Bronzeleje Udvendig	Bronze bearing outward	Äusser Bronzelager	44520027
22B	Bronzeleje indvendig	Bronze bearing inward	Inner Bronzelager	44520026
23 Sk	ruer	Screw	Schraube	44496525
24	Gradskalabøsning	Logging scale bush	Gradskaler-Buchse	44520008
25	Omløber for pen	Barrel for electrode clamp	Umläufer für Elektrodenzange	44520023
26 U-	skive	U-wheel	U-scheibe	41530530
27	Klemtang	Electrode clamp	Elektrodenzange	4451016x
28 W	olframelektrode	Tungsten electrode	Wolframelektrode	
29	PVC-slange Ø4x60	Tapping hose Ø4x60	PVC-Schlauch	44492600
30	Smørenippelhætte	Grease nipple stopper	Schmiernippel-Stöpsel	44492610
31	Vridbar vinkel	Elbow pipe	Winkelrohr	44492500
33	Tætningsring for bøsning	Packing ring for bush	Dichtungsring für Buchse	44520018
34	O-ring Ø12x2,5 mm	O-ring Ø12x2,5mm	O-ring 12x2,5 mm	44470312
35 Af	bryder	Switch	Schalter	17110027
36	Aflastning PG9	Relief PG9	Verschraubung PG9	18480012
37	Netledning	Mains cable	Netzkabel	74250014
38	Låg for væskebeholder	Cover for liquid tank	Deckel für Flüssigkeitbehälter	44494540
39 Væs	kebeholder	Liquid tank	Flüssigkeitbehälter	75494500
40	O-ring Ø13x1,5 mm	O-ring Ø13x1,5 mm	O-ring Ø13x1,5 mm	44470213
41 Bor	dkonsol	Desk console	Tisch-Konsole	88897910
43 G	radskala	Degree scale	Gradskala	62189220
44	Gummi membran	Rubber pack (membrane)	Gummi Membran	44470124
45	Afstandsstykke motor	Space piece motor	Abstandstück Motor	44520019
46	Afstandsskruer Str	etching screw	Abstandsschraube 44520022	
47	Etiket Ultima-TIG	Label Ultima-TIG	Etikett Ultima-TIG	62189222
	Væskebeholder 5 ltr.	Liquid container 5 ltr	Flüssigkeitsbehälter	75494000



### 14. Drawing of Ultima-TIG



Drawing Ultima-TIG – Changing of the grinding disc.



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**NEUTRA grinding liquid**  
**Ultima TIG Grinding Liquid (concentrate)**

**Material Safety Data Sheet**

## 1. Supplier

## 2. Product Identification

### Names:

**Neutra Grinding Liquid EP770**

**Ultima TIG Grinding Liquid (concentrate)**

### Part Numbers;

**75491301**

**75491300**

## 2.1 Use

When diluted (19:1) with water, used as lubricant/coolant in NEUTRA and Ultima-TIG tungsten grinding machines.

## 3.1 Appearance

Green, water-based liquid.

## 3.2 Odour

None detectable.

## 3.3. Ingredients

Alcanolamine compounds,  
glycol derivatives,  
preservatives,  
dye and water.

## 3.4 Physical & chemical properties

<b>Physical state:</b>	Liquid
<b>Colour:</b>	Green
<b>Odour:</b>	Faint
<b>pH:</b>	8,0
<b>Boiling point:</b>	100 ° C
<b>Melting point:</b>	< 0° C
<b>Density:</b>	1,02g/ml
<b>Solubility in water:</b>	Fully miscible.

### 3.5 Hazard Identification

Not classified as hazardous

Repeated or prolonged contact may lead to skin irritation.

### 4. First aid measures

<b>Eyes:</b>	Immediately flood the eyes with plenty of water for at least 15 min, holding the eye open. Obtain medical assistance if soreness or redness persists.
<b>Skin:</b>	Wash skin with soap and water.
<b>Inhalation:</b>	Remove the person from exposure.
<b>Ingestion:</b>	Wash out mouth with water. Do not induce vomiting. Obtain medical assistance.

### 5. Flammability

<b>Danger of fire:</b>	The product is unable to develop fire or explosion.
<b>Extinguishing media:</b>	None required.
<b>Precautions:</b>	Avoid inhalation of hazardous fumes of the fire.

### 6. Accidental release measures

<b>Spillages:</b>	Contain and absorb using earth, sand or other inert material. Transfer into suitable container for recovery or disposal
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### 7. Handling and storage

<b>Handling:</b>	Avoid contact with the skin and eyes. Avoid inhalation.
<b>Storage:</b>	Storage temperature should be controlled between 1- 40° C

### 8. Exposure controls & personal protection



When using the product inside the wet grinder there is no need of personal protection.

If any risk of contact with the skin, use PVC or rubber gloves.

If any risk of eye contact, use chemical goggles.

## 9. Stability & reactivity

The product is stable under normal conditions

## 10. Toxicological information

**Short-term effects:** Contact with the eyes will cause irritation

**Long-term effects:** Long-term or repeated skin contact with the concentrate may result in inflammation of the skin.

## 12. Ecological information

The product is not classified as dangerous to the environment.

The product will leach into soil.

## 13. Disposal

Used fluid is to be disposed of according to local regulations or returned to Inelco A/S or its distributors.

## 14. Transport information

The product is not classified as dangerous goods

## 15. Labelling

Classification : Hazard labelling is not required

R-sentences : none

S-sentences : none

16. Other information MSDS date revised: March 2012.