

KEMPOTIG AC/DC

9939

KÄYTTÖOHJE
BRUKSANVISNING
OPERATION INSTRUCTIONS
GEBRAUCHSANWEISUNG
GEBRUIKSAANWIJZING
MANUEL D'UTILISATION

1916130

KEMPOTIG 4500 AC/DC



Lue ja perehdy tähän ohjeeseen ennen hitsauskoneen käyttöönottoa !

Läs noga igenom denna bruksanvisningen före bruket av svetsmaskinen !

Read carefully these instructions before you use the welding machine !

Bitte, lesen Sie diese Gebrauchsanweisungen vor Gebrauch der Schweißmaschine !

Lees deze gebruiksaanwijzing aandachtig door voor u de lasmachine in gebruik neemt !

Veuillez lire et appliquer ces instructions avant utilisation de la machine !



KEMPPI

Suomi

KÄYTTÖSÄÄTIMET, KYTKIMET JA LIITTIMET	4
Verkkokaapelin kytkentä	5
Pölysuotimen irroitus	5
LISÄLÄITTEET JA KAAPELIT	6
KAUKOSÄÄTÖ	9
Mittariyksikkö MU 20D	10
PSM-LISÄTOIMINTAYKSIKÖT	12
KÄYTTÖTURVALLISUUS	13
TAKUUEHDOT	13
YLEISTÄ	14
Kempotig 4500 AC/DC:een sopivat yksiköt:	14
KÄYTTÖÖNOTTO	14
Sijoitus	14
Sähköverkkoon liittäminen	14
Sähköverkon jännitetoleranssi	14
KÄYTTÖTOIMINNOT	14
Pääkytkin (S1)	14
Puhaltimen toiminta	14
Tyhjäkäyntijännite	14
Menetelmäkohtaiset virtalajien esivalinnat (S2-3)	14
AC balanssin säätö (R1)	14
Apujännitesyöttö (X2)	15
PSM-LISÄTOIMINTAYKSIKÖT	15
PSM 10 käyttötoiminnot	15
Mittariyksikkö PSM 20	15
HITSAUSLÄITTEISTON KOKOONPANO JA KÄYTTÖ	15
Puikkolaitteiston käyttö	15
TIG / puikkolaitteiston käyttö	15
KÄYTTÖHÄIRIÖT	15
Vaiheen puuttuminen sähköverkosta	16
Ylijännitelaukaisun toiminta	16
Ylikuormitussuojien toiminta	16
Koneen pääsulake (F1)	16
Ohjaussulake (F2)	16
HUOLTO	16
Pölysuotimen puhdistus	16
Määräaikaishuolto	16
TEKNISET ARVOT	17

Svenska

MANÖVERORGAN, BRYTARE OCH ANSLUTNINGAR	4
Anslutning av nätkabel	5
Lossning av dammfilter	5
EXTRA UTRUSTNINGAR OCH KABLAR	6
FJÄRREGLERING	9
Mätarenhet MU 20D	10
PSM-TILLSATSATSENHETER	12
DRIFTSÄKERHET	18
GARANTIVILLKOR	18
ALLMÄNT	19
Enheter som rekommenderas att användas tillsammans med Kempotig 4500 AC/DC:	19
MASKINEN TAS I DRIFT	19
Placering	19
Anslutning till elnätet	19
Spänningstolerans från elnätet	19
ANVÄNDNING	19
Huvudbrytare (S1)	19
Fläktens funktion	19
Tomgångsspänning	19
Förval av svetsmetod, strömart och polaritet (S2-3)	19
Inställning av AC-balans (R1)	19
Hjälpspanningsmatning (X2)	20
PSM-TILLSATSATSENHETER	20
PSM 10 funktioner	20
PSM 20-meterenhet	20
SVETSANLÄGGNINGENS KABELANSLUTNINGAR OCH ANVÄNDNING	20
Användning av MMA-anläggning	20
Användning av TIG-/MMA-anläggning	20
DRIFTSTÖRNINGAR	20
Fasbortfall på elnätet	21
Funktion av överspanningsutlösning	21
Funktion av överbelastningsskydd	21
Maskinens huvudsäkring (F1)	21
Styrströmssäkring (F2)	21
SERVICE	21
Rengöring av dammfilter	21
Underhållsservice	21
TEKNISKA DATA	22

English

OPERATION CONTROL, SWITCHES AND CONNECTORS .	4
Connection of mains cable	5
Removal of dust filter	5
ACCESSORIES AND CABLES	6
REMOTE CONTROL	9
Meter unit MU 20D	10
AUXILIARY FUNCTIONAL UNITS PSM	12
OPERATION SAFETY	23
TERMS OF GUARANTEE	23
GENERAL	24
The units recommended to be used with the Kempotig 4500 AC/DC:	24
INSTALLATION	24
Siting the machine	24
Connection to main supply	24
Tolerance of the mains supply voltage	24
OPERATION	24
Main switch (S1)	24
Operation of the cooling fan	24
Idling voltage	24
Current type pre-selecting for each method (S2-3)	24
AC balance control (R1)	24
Auxiliary voltage supply (X2)	25
AUXILIARY FUNCTIONAL UNITS PSM	25
PSM 10 operations	25
Meter unit PSM 20	25
ASSEMBLY AND OPERATION OF WELDING EQUIPMENT	25
Use of MMA equipment	25
Use of TIG/MMA equipment	25
OPERATION DISTURBANCES	26
Loss of a phase in the mains supply	26
Operation of the overvoltage releasing	26
Operation of the overload protections	26
Main fuse of the machine (F1)	26
Control fuse (F2)	26
MAINTENANCE	26
Cleaning of the dust filter	26
Regular maintenance	26
TECHNICAL DATA	27

Deutsch

BEDIENUNGSELEMENTE, SCHALTER UND ANSCHLÜSSE	4
Anschluss des netzkabels	5
Lösung des Staubfilters	5
ZUSATZGERÄTE UND KABEL	6
FERNREGELUNG	9
Messereinheit MU 20D	10
PSM-ZUSATZFUNKTIONSEINHEIT	12
BETRIEBSSICHERHEIT	28
GARANTIEBEDINGUNGEN	28
ALLGEMEINES	29
Die folgenden Einheiten werden empfohlen:	29
INBETRIEBNAHME	29
Aufstellen	29
Netzanschluß	29
Spannungstoleranz des Netzes	29
BEDIENUNGSELEMENTE	29
Hauptschalter (S1)	29
Funktion des Ventilators	29
Leerlaufspannung	29
Vorwahl der Stromarten nach der jeweils eingestellten Schweißmethode (S2-3)	29
Einstellung der AC Balance (R1)	30
Hilfsspannungsversorgung (X2)	30
PSM-ZUSATZFUNKTIONSEINHEIT	30
PSM 10 Funktionen	30
PSM 20 Messereinheit	30
AUFBAU UND BEDIENUNG DER SCHWEISSANLAGE	30
Bedienung der Stabelektrodenanlage	30
Betrieb der WIG / Stabelektrodenanlage	30
BETRIEBSSTÖRUNGEN	31
Fehlen einer Netzphase	31
Funktion der Überspannungsauslösung	31
Funktion des Überlastungsschutzes	31
Hauptsicherung der Maschine (F1)	31
Steuersicherung (F2)	31
WARTUNG	31
Reinigen des Staubfilters	31
Termingebundene Wartung	32
TECHNISCHE DATEN	32

Nederlands

BEDIENING, SCHAKELAARS EN AANSLUITINGEN	4
Aansluiting van netkabel	5
Verwijderen van stoffilter	5
ACCESSOIRES EN KABELS	6
AFSTANDBEDIENING	9
Meterunit MU 20D	10
HULPFUNCTIE-UNITS PSM	12
VEILIGE WERKING	33
GARANTIEVOORWAARDEN	33
ALGEMEEN	34
Volgende eenheden worden aanbevolen:	34
INDIENSTELLING	34
Opstellen	34
Netaansluiting	34
Spanningstolerantie van het net	34
BEDIENINGSELEMENTEN	34
Hoofdschakelaar (S1)	34
Functie van de ventilator	34
Onbelaste spanning	34
Voorinstelling van de stroomtypes op basis van de ingestelde lasmethode (S2-3)	34
Instelling van de AC-balans (R1)	35
Hulpvoeding (X2)	35
BIJKOMENDE FUNCTIE-EENHEID PSM	35
PSM 10 functies	35
PSM 20 meeteenheid	35
OPBOUW EN BEDIENING VAN DE LASINSTALLATIE ...	35
Bediening van de elektrodeninstallatie	35
Werking van de TIG / elektrodeninstallatie	35
BEDRIJFSSTORINGEN	36
Ontbreken van een netfase	36
Werking van de overspanningsbeveiliging	36
Werking van de overbelastingsbeveiliging	36
Hoofdzekering van de machine (F1)	36
Stuurzekering (F2)	36
ONDERHOUD	36
De stoffilter reinigen	36
Periodiek onderhoud	37
TECHNISCHE GEGEVENS	37

Français

COMMANDES, INTERRUPTEURS ET CONNECTEURS ..	4
Raccordement du câble d'alimentation	5
Changementement du filtre antipoussière	5
ACCESSOIRES ET CABLES	6
COMMANDE A DISTANCE	9
Afficheur digital courant / tension MU 20D	10
UNITES DE REGLAGE ET DE CONTROLE PSM	12
CONSIGNES DE SECURITE	38
CONDITIONS DE GARANTIE	38
FRANÇAIS	39
Dispositifs pouvant être utilisés avec le Kempotig 4500 AC/DC:	39
INSTALLATION	39
Choix de l'implantation	39
Raccordement au réseau	39
Tolérance de la tension d'alimentation du réseau	39
FONCTIONNEMENT	39
Interrupteur principal (S1)	39
Fonctionnement du ventilateur	39
Tension à vide	39
Présélection du type de courant pour chaque procédé (S2-3)	39
Réglage de la balance AC (R1)	39
Tension d'alimentation auxiliaire (X2)	40
UNITES DE REGLAGE ET DE CONTROLE PSM	40
Fonctionnement du PSM 10	40
PSM 20	40
MONTAGE ET FONCTIONNEMENT DU POSTE DE SOUDAGE	40
Utilisation de l'appareil pour le soudage à l'électrode ..	40
Utilisation de l'appareil pour le soudage TIG/Electrode ..	40
ANOMALIES DE FONCTIONNEMENT	41
Coupure d'une phase dans l'alimentation secteur	41
Fonctionnement de la sécurité en cas de surtension ..	41
Fonctionnement du dispositif de protection contre les surtensions	41
Fusible principal de la machine (F1)	41
Fusible auxiliaire (F2)	41
ENTRETIEN	41
Nettoyage du filtre antipoussière	41
Entretien régulier	42
CARACTERISTIQUES TECHNIQUES	42

Käyttösäätimet, kytkimet ja liittimet
Manöverorgan, brytare och anslutningar
Operation control, switches and connectors
Bedienungselemente, Schalter und Anschlüsse
Bediening, schakelaars en aansluitingen
Commandes, interrupteurs et connecteurs

F2 Lisälaitteiden ohjaussulake 8 A hidas
 Manöversäkring för extra utrustningar 8 A trög
 Control fuse for accessories 8 A delayed
 Steuersicherung für Zusatzgeräte 8 A träge
 Zekering voor hulpapparatuur 8 A traag
 Fusible auxiliaire 8 A retardé

F3 Pistorasian sulakkeet 2 A hidas
F4 Säkringar för kontaktdosa 2 A tröga
 Fuses for socket outlet 2 A delayed
 Sicherungen für Steckdosen 2 A träge
 Zekeringen voor contactdozen 2 A traag
 Fusibles pour prises murales 2 A retardé

H1 Merkkivalo I/O
 Signallampa I/O
 Signal lamp I/O
 Signallampe I/O
 Signaallamp I/O
 Témoin lumineux I/O

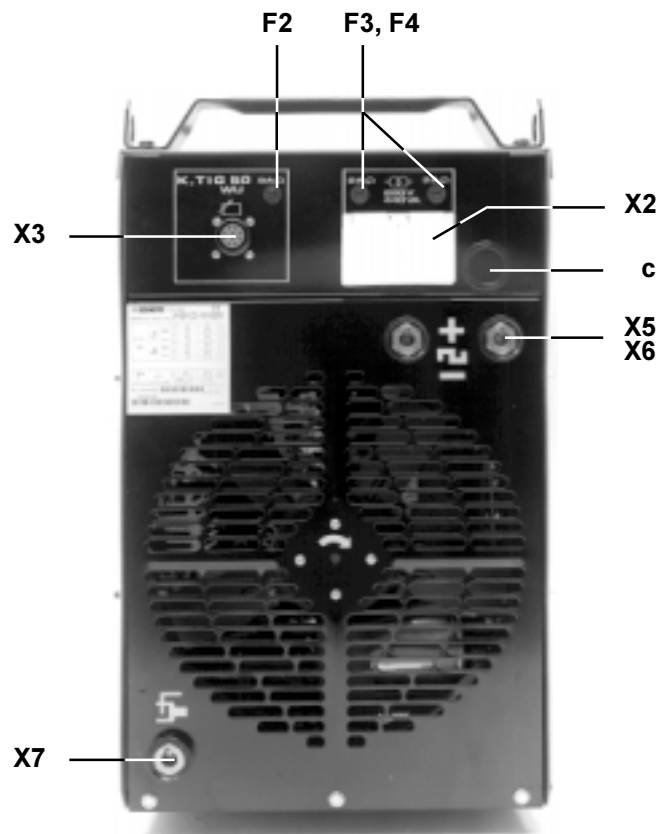
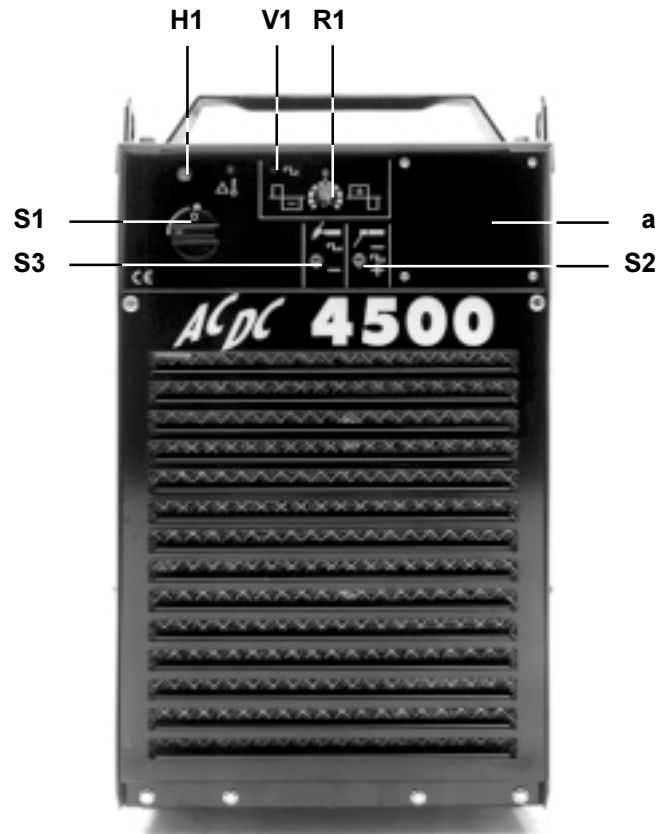
R1 Vaihtovirtahitsauksen balanssisäätö
 Balansinställning för AC-svetsning
 Balance control for AC welding
 Balanceneinstellung für AC-Schweißen
 Balansregeling voor wisselstroomlassen
 Réglage de la balance AC

S1 Pääkytkin I/O
 Huvudbrytare I/O
 Main switch I/O
 Hauptschalter I/O
 Hoofdschakelaar I/O
 Interrupteur principal I/O

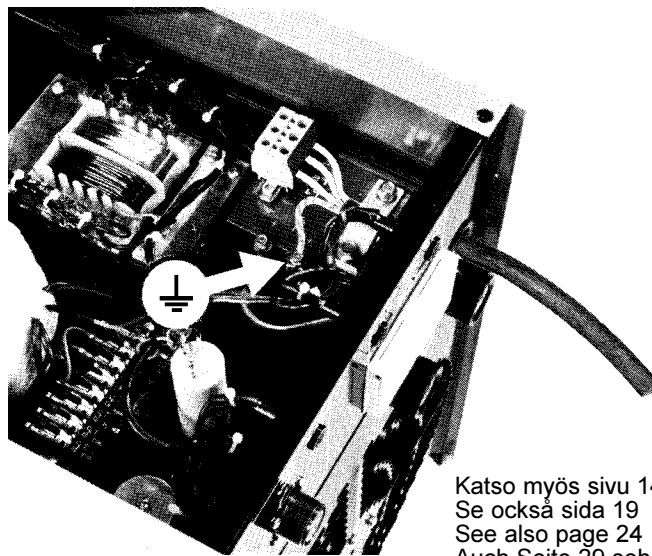
S2 Puikkohitsauksen virtalajin valintakytkin
 Väljare för MMA-svetsningens strömart
 Selecting switch for MMA welding's current type
 Wahlschalter für Stromtyp des Stabelektroden-
 schweissens
 Keuzeschakelaar voor elektrodenlassen (polariteit)
 Commutateur de sélection du type de courant en
 soudage à l'électrode

S3 TIG-hitsauksen virtalajin valintakytkin
 Väljare för TIG-svetsningens strömart
 Selecting switch for TIG welding's current type
 Wahlschalter für Stromtyp des WIG-Schweißens
 Keuzeschakelaar voor TIG-lassen (polariteit)
 Commutateur de sélection du type de courant en
 soudage TIG

V1 Balanssisädön / vaihtovirtahitsauksen merkkivalo
 Signallampa för balansinställning / AC-svetsning
 Signal lamp for balance control / AC welding
 Signallampe für Balanceneinstellung / AC-
 Schweißen
 Signaallamp voor balansregeling wisselstroomlassen
 Témoin lumineux du réglage de la balance en sou-
 dage CA



Verkkokaapelin kytkentä
Anslutning av nätkabel
Connection of mains cable
Anschluss des netzkabels
Aansluiting van netkabel
Raccordement du câble d'alimentation

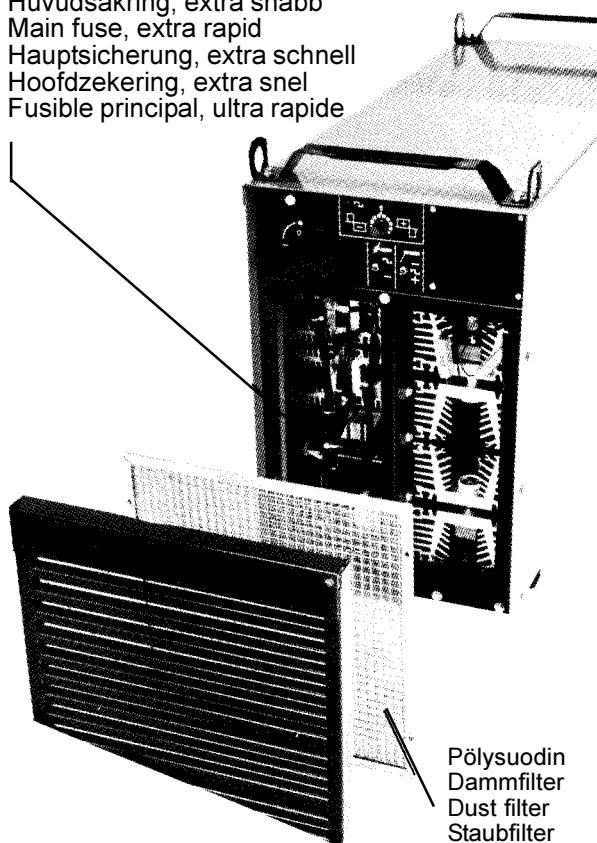


Katso myös sivu 14
 Se också sida 19
 See also page 24
 Auch Seite 29 sehen
 Zie ook pag. 34
 Voir également page 39

- X2** Pistorasia Schuko 220 V, 440 VA
 Kontaktdosa Schuko 220 V, 440 VA
 Socket outlet Schuko 220 V, 440 VA
 Steckdose Schuko 220 V, 440 VA
 Contactdozen Schuko 220 V, 440 VA
 Prise Schuko 220 V, 440 VA
- X3** Ohjauskaapeliliitin Kempotig 50 / WU / kauko-
 säädin
 Anslutning för manöverkabel Kempotig 50 /
 WU / fjärreglage
 Connector for control cable Kempotig 50 / WU /
 remote controller
 Anschluß für Steuerkabel Kempotig 50 / WU /
 Fernregler
 Aansluiting voor stuurstroom-kabel Kempoti-
 g 50 / WU / afstandsbediening
 Connecteur du câble de commande Kempoti-
 g 50 / WU / commande à distance
- X5** Hitsauskaapeliliitin Kempotig 50 / puikonpidin
X6 Anslutning för svetskabel Kempotig 50 /
 elektrodhållare
 Connector for welding cable Kempotig 50 /
 electrode holder
 Anschluß für Schweißkabel Kempotig 50 /
 Elektrodenhalter
 Aansluiting voor laskabel Kempotig 50 / elekt-
 rodenhouder
 Connecteur du câble de soudage Kempotig 50 /
 porte-électrode
- X7** Paluuvirtakaapeliliitin työkappale / Kempotig 50
 Återledaranslutning arbetsstycke / Kempotig 50
 Return cable connector work piece / Kempotig 50
 Rückleitungskabelanschluß Werkstück / Kem-
 potig 50
 Werkstukkabel werkstuk / Kempotig 50
 Connect. du câble de masse / Kempotig 50
- a** Asennusluukku PSM
 Montagelucka PSM
 Inspection cover PSM
 Montageluke PSM
 Montageluik PSM
 Emplacement pour PSM
- c** Verkkokaapelin läpivienti
 Genomföring av nätkabel
 Inlet of mains cable
 Durchführung des Netzkabels
 Invoer van netkabel
 Entrée du câble d'alimentation

Pölysuotimen irroitus
Lossning av dammfilteret
Removal of dust filter
Lösung des Staubfilters
Verwijderen van stoffilter
Changement du filtre antipoussière

- F1** Pääsulake, erikoisnopea
 Huvudsäkring, extra snabb
 Main fuse, extra rapid
 Hauptsicherung, extra schnell
 Hoofdzekering, extra snel
 Fusible principal, ultra rapide



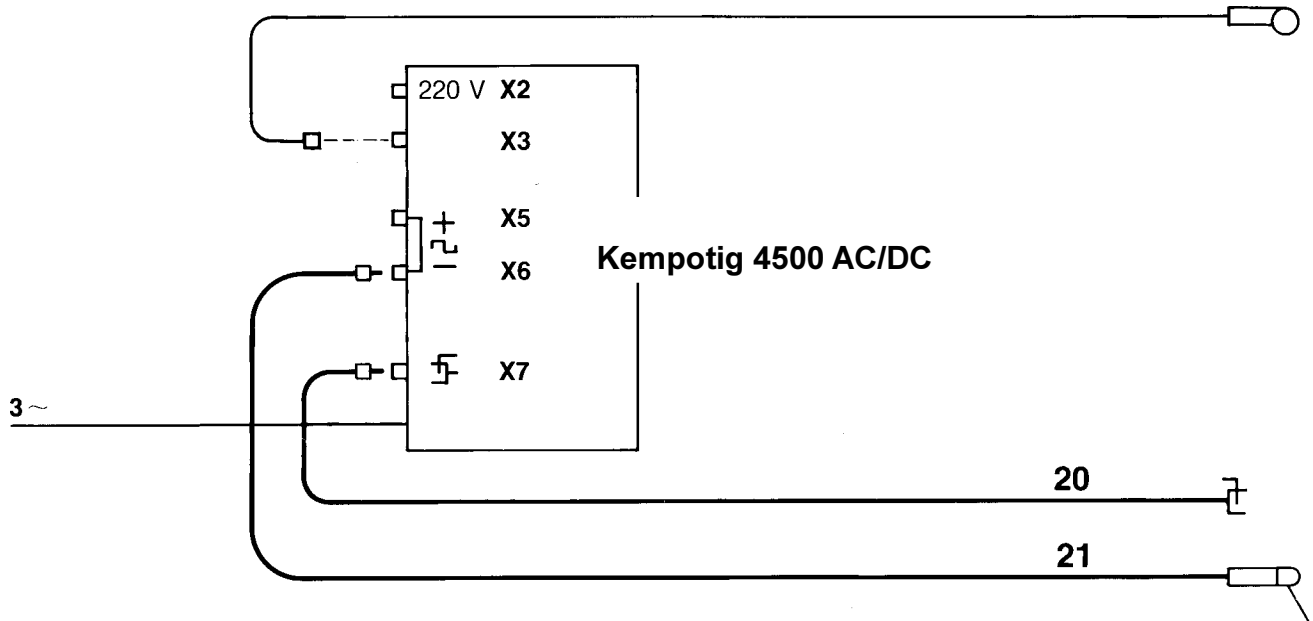
Pölysuodin
 Dammfilter
 Dust filter
 Staubfilter
 Stoffilter
 Filtre antipoussière

**Lisälaitteet ja kaapelit, Extra utrustningar och kablar,
Accessories and cables, Zusatzgeräte und Kabel,
Accessoires en kables, Accessoires et câbles**



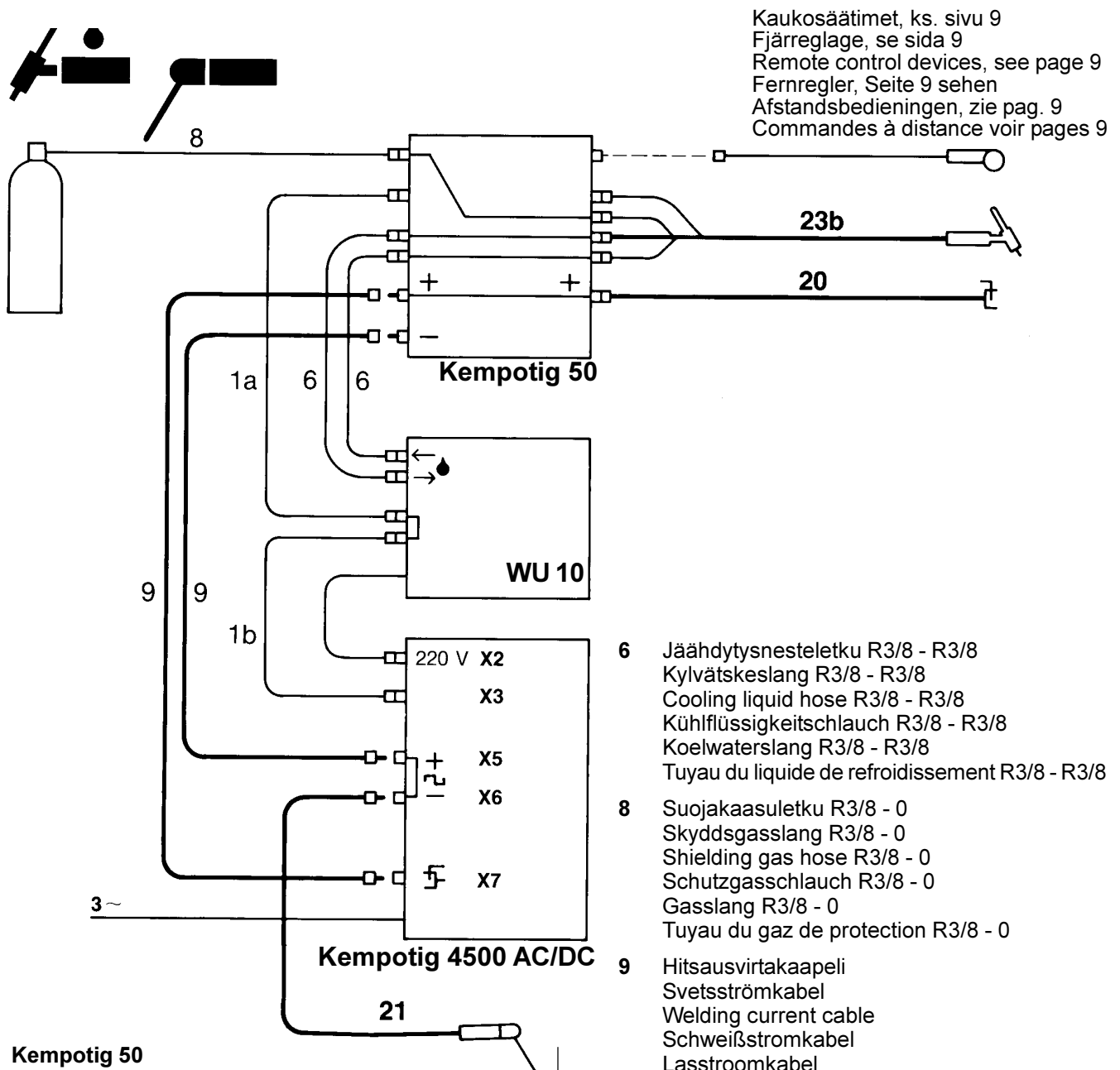
- 20** Paluuvirtakaapeli
Återledare
Return current cable
Stromrückleitungskabel
Werkstukkabel
Câble de masse
- 21** Puikkohitsauskaapeli
Kabel för MMA-svetsning
Cable for MMA welding
Kabel für Stabelektrodenschweißen
Kabel voor elektrodenlassen
Câble pour soudage à l'électrode

Kaukosäätimet, ks. sivu 9
Fjärreglage, se sida 9
Remote control devices, see page 9
Fernregler, Seite 9 sehen
Afstandbedieningen, zie pag. 9
Commandes à distance voir pages 9



Kempotig 4500 AC/DC

20 / 5 m 70 mm ² 6184711
20 / 10 m 70 mm ² 6184712
21 / 5 m 70 mm ² 6184701
21 / 10 m 70 mm ² 6184702



Kaukosäätimet, ks. sivu 9
Fjärrreglage, se sida 9
Remote control devices, see page 9
Fernregler, Seite 9 sehen
Afstandsbedieningen, zie pag. 9
Commandes à distance voir pages 9

Kempotig 50

TIG-kipinäsytytyslaite
TIG-tändningsenhet
TIG ignition unit
WIG-Zündeinheit
TIG-hoogfrequentunit
Dispositif d'amorçage TIG

WU 10

Nestejäähdytyslaite
Kylvätskeanläggning med cirkulationssystem
Cooling water circulation unit
Wasserkreislaufgerät
Waterkoelunit
Dispositif de circulation d'eau de refroidissement

W4 = 1a + 1b + 6 + 6 + 8 + 9 + 9

1a Ohjaukskaapeli 10-nap. järjestelmä

1b Manöverkabel 10-poligt system
Control cable 10 poles system
Steuerkabel 10-poliges System
Stuurstroombekabel 10-polig systeem
Câble de commande - 10 pôles

6 Jäähdytysnesteletku R3/8 - R3/8
Kylvätskeslang R3/8 - R3/8
Cooling liquid hose R3/8 - R3/8
Kühlflüssigkeitschlauch R3/8 - R3/8
Koelwaterslang R3/8 - R3/8
Tuyau du liquide de refroidissement R3/8 - R3/8

8 Suojakaasuletku R3/8 - 0
Skyddsgasslang R3/8 - 0
Shielding gas hose R3/8 - 0
Schutzgasschlauch R3/8 - 0
Gasslang R3/8 - 0
Tuyau du gaz de protection R3/8 - 0

9 Hitsausvirtakaapeli
Svetsströmkabel
Welding current cable
Schweißstromkabel
Lasstroombekabel
Câble courant de soudage

20 Paluuvirtakaapeli
Återledare
Return current cable
Stromrückleitungskabel
Werkstukkabel
Câble de masse

21 Puikkohitsauskaapeli
Kabel för elektrodsvetsning
Cable for MMA welding
Kabel für Elektrodenschweißen
Kabel voor elektrodenlassen
Câble pour soudage à l'électrode

23b TIG-poltin nestejäähdytteinen
TIG-brännare vätskekyld
TIG torch liquid-cooled
WIG-Brenner flüssigkeitsgekühlt
TIG-toorts watergekoeld
Torche TIG refoïdie eau

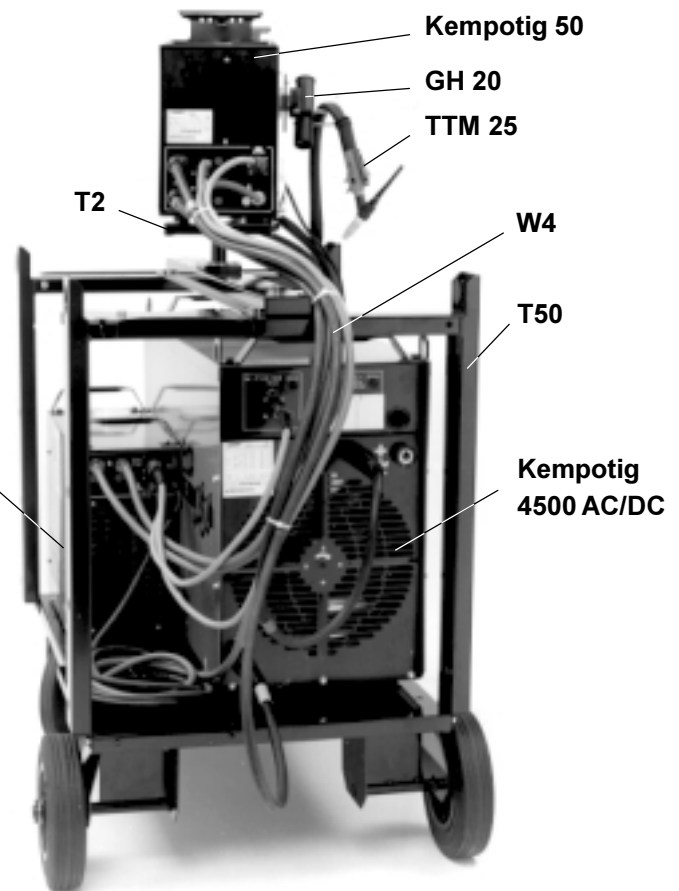


C 100C

20

21

WU 10



Kemptig 50

GH 20

TTM 25

T2

W4

T50

Kemptig
4500 AC/DC

T2	6185235
T50	6185245
WU 10	6262010
Kemptig 4500 AC/DC	6164500
Kemptig 50	6271224
GH 20	6256020
C 100C	6185410
W4 / 1,85 m	6271873
/ 5 m 70 mm ²	6271875
/ 10 m 70 mm ²	6271877
20 / 5 m 70 mm ²	6184711
/ 10 m 70 mm ²	6184712
21 / 5 m 70 mm ²	6184701
/ 10 m 70 mm ²	6184702

Kaukosäätö, Fjärreglering, Remote control, Fernregelung, Afstandbediening, Commandes à distance

C 100C, C 100D

Puikko-/TIG-hitsausvirran karkeasäätö (R61), muistias-
teikko 1-10, ja hienosäätö +/- (R62)

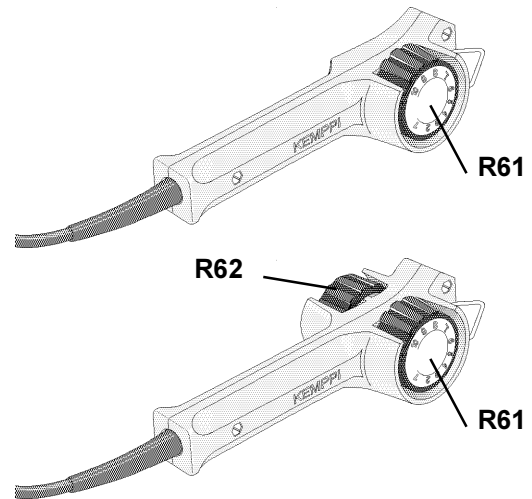
Grovinställning (R61), minneskala 1-10, och fininställ-
ning +/- (R62) för MMA/TIG svetsström.

Rough control (R61), memory scale 1-10, and fine control
+/- (R62) for MMA/TIG welding current.

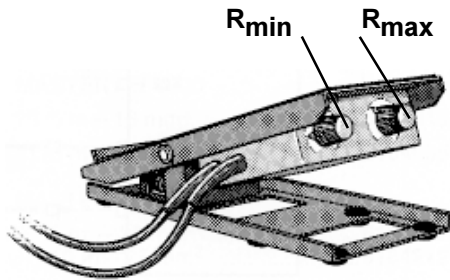
Grobeinstellung (R61), Speicherskala 1-10, und
Feineinstellung +/- (R62) für Elektroden-/WIG-Schweiß-
strom.

Grofreqeling (R61), schaal 1-10, en fijnregeling +/- (R62)
voor lasstroom elektroden- / TIG-lassen.

Premiers réglages (R61), échelle de mémoire 1-10, et
réglage fin +/- (R62) du courant de soudage Electrode/
TIG.



C 100F



Jalkapoljinsäädin TIG-hitsaukseen

- start-toiminto
- hitsausvirran säätö polkimen liikkeellä
- hitsausvirta-alueen raja-
us min.- ja max.-poten-
tiometreillä (muistiasteikko 1-10)

Fotpedalreglage för TIG-svetsning

- start-funktion
- inställning för svetsström med rörelse på pedal
- begränsning av svetsström-
område med min.- och
max.-potentiometrar (minneskala 1-10)

Foot pedal control unit for TIG welding

- start operation
- control for welding current with movement on pedal
- limiting of welding current range with min.- and max.-
potentiometers (memory scale 1-10)

Fußpedalregler für WIG-Schweißen

- Start-Funktion
- Einstellung für Schweißstrom mit Bewegung am
Pedal
- Begrenzung des Schweißstrombereiches mit min.-
und max.- Potentiometern (Speicherskala 1-10)

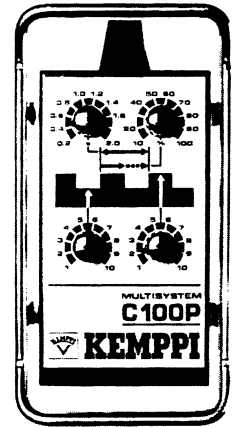
Voetpedaalregeling voor TIG-lassen

- startfunctie
- lasstroomregeling
- begrenzing van het lasstroom-
bereik met min.- en
max.-potentiometers (schaal 1-10)

Commande à pédale pour soudage TIG

- Mise en route
- Réglage du courant de soudage par pressions sur
la pédale
- Réglage maxi / mini du courant de soudage par
potentiomètres (échelle de mémoires 1-10)

C 100P



Pitkápulssisäädin

TIG-hitsaukseen

- pulssivirran säätö (1-10)
- perusvirran säätö (1-10)
- jakson ajan (taajuuden)
säätö 0,2-2 s (5-0,5 Hz)
- pulssisuhteen säätö
10-100 % (100 % vastaa jatkuvaa hitsausta)

Långpulsreglage för TIG-svetsning

- inställning för pulsström (1-10)
- inställning för grundström (1-10)
- inställning för intervalltid (frekvens) 0,2-2 s (5-0,5 Hz)
- inställning för pulssintermittens 10-100 % (100 %
motsvarar kontinuerlig svetsning)

Long pulse unit for TIG welding

- control of pulse current (1-10)
- control of basic current (1-10)
- control of interval time (frequency) 0,2-2 s (5-0,5 Hz)
- control of pulse cycle 10-100 % (100 % corresponds
to continuous welding)

Langpulsregler für WIG-Schweißen

- Einstellung für Pulsstrom (1-10)
- Einstellung für Grundstrom (1-10)
- Einstellung für Intervallzeit (Frequenz) 0,2-2 s (5-0,5 Hz)
- Einstellung für Pulsdauer 10-100 % (100 %
entspricht dem Dauerschweißen)

Pulsregeling voor TIG-lassen

- instelling van pulsstroom (1-10)
- instelling van basistroom (1-10)
- instelling van intervalltijd (frequentie) 0,2-2 s (5-0,5 Hz)
- instelling van pulstijd 10-100 % (100 % komt
overeen met continue lassen)

Unité de pulsation pour soudage TIG

- réglage du courant haut (1-10)
- réglage du courant bas (1-10)
- réglage de l'intervalle (fréquence) 0,2-2 s (5-0,5 Hz)
- réglage de la durée du courant haut 10-100 %
(100 % correspond au soudage en continu)

Mittariyksikkö MU 20D
Mätarenhet MU 20D
Meter unit MU 20D
Messereinheit MU 20D
Meterunit MU 20D
Afficheur digital MU 20D

MU 20D on numeronäyttöinen (LCD) erillinen mittariyksikkö hitsausvirran ja -jännitteen tarkkailuun. MU 20D:tä voidaan käyttää PS / PSS- ja KEMPOTIG 4500 AC/DC-virtalähteiden yhteydessä.

- hitsausvirtanäyttö: 0...1999 A $\pm 2\%$ ± 2 A DC
- hitsausjännitteenäyttö: 0...199,9 V $\pm 2\%$ $\pm 0,2$ V DC
- näytöissä taustavalo
- hold-toiminnan avulla voidaan näytön lukema pysäyttää.

Mittarit näyttävät virran ja jännitteen keskiarvoja (DC) / tasasuunnattuja keskiarvoja (AC).

Huom! Jännitemittari näyttää koneen napajännitettä. On huomattava, että kaarijännite on jopa useita voltteja alhaisempi kuin napajännite hitsattaessa suurilla virroilla ja pitkillä kaapeleilla.

MU 20D är en separat mätarenhet med nummerindikation (LCD) för kontroll av svetsström och -spänning. MU 20D kan användas med strömkällor PS / PSS och KEMPOTIG 4500 AC/DC.

- svetsströmindikation: 0... 1999 A $\pm 2\%$ ± 2 A DC
- svetsspänningsindikation: 0... 199,99 V $\pm 2\%$ $\pm 0,2$ V DC
- bakgrundsljus i indikationer
- med hjälp av hold-funktionen kan mätarutslaget få att stannas i rutan

Instrumenten visar medelvärden för spänning och ström (DC) / likriktade medelvärden (AC).

OBS! Spänningsmätaren visar maskinens polspänning. Man bör komma ihåg att bågspänningen kan vara flera volt lägre än polspänning när höga svetsströmmar och långa kablar användes.

MU 20D is a separate meter unit with digital display (LCD) for the control of welding current and voltage. MU 20D can be used with the power sources PS / PSS and KEMPOTIG 4500 AC/DC.

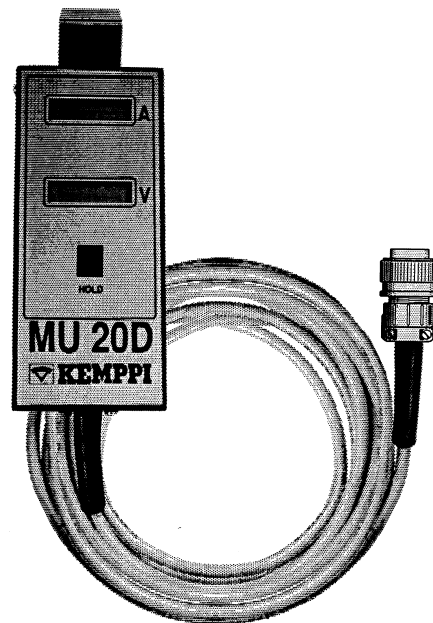
- welding current display: 0... 1999 A $\pm 2\%$ ± 2 A DC
- welding voltage display: 0... 199,99 V $\pm 2\%$ $\pm 0,2$ V DC
- background light in displays
- with help of the hold operation the reading can be made to stay in the display.

The metres indicate average values of voltage and current (DC)/rectified average values (AC).

Note! The voltage meter shows pole voltage of the machine. Note that arc voltage is even many volts lower than pole voltage in welding with high currents and long cables.

MU 20D ist eine separate Messereinheit mit der Zitteranzeige (LCD) für die Kontrolle des Schweißstromes und der schweißspannung. MU 20D kann mit den Stromquellen PS / PSS- und KEMPOTIG 4500 AC/DC gebraucht werden.

- Schweißstromanzeige: 0... 1999 A $\pm 2\%$ ± 2 A DC
- Schweißspannungsanzeige: 0... 199,9 V $\pm 2\%$ $\pm 0,2$ V DC



- Hintergrundlicht in Anzeigen
- mit der Hilfe von der Hold-Funktion kann man die Ablesung in der Anzeige stehen lassen.

Die Instrumente zeigen die Mittelwerte des Stromes und der Spannung (DC) / gleichgerichtete Mittelwerte (AC).

Achtung! Der Spannungsmesser zeigt die Polspannung der Maschine an. Bitte beachten Sie, daß beim Schweißen mit großen Strömen und langen Kabeln die Lichtbogenspannung sogar mehrere Volt niedriger als die Polspannung ist.

De **MU 20D** is een separate meterunit met een digitale aanwijzing voor het controleren van de lasstroom en lasspanning. De MU 20D kan op de volgende stroombronnen gebruikt worden: PS / PSS en de KEMPOTIG 4500 AC/DC.

- Stroombereik: 0... 1999 A $\pm 2\%$ ± 2 A DC
- Spanningsbereik: 0... 199,99 V $\pm 2\%$ $\pm 0,2$ V DC
- Schaalverlichting
- Met behulp van de houdfunctie kunnen de laswaarden in het geheugen opgeslagen worden.

De meters geven de gemiddelde waarde aan van stroom en spanning.

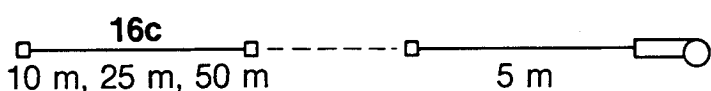
LET OP! De voltmeter geeft de spanning op de klemmen van de machine aan. Bedenk dat, bij het lassen met een hoge stroom en bij gebruik van lange kabels, de boogspanning lager is dan de klemspanning.

Le **MU 20D** est un appareil de mesure à affichage numérique du courant et de la tension de soudage. Le MU 20D peut être utilisé avec les sources PS / PSS et KEMPOTIG 4500 AC/DC.

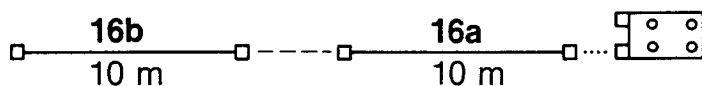
- Affichage du courant de soudage: 0...1999 A $\pm 2\%$ ± 2 A Courant Continu
- Affichage de la tension de soudage: 0...199,9 V $\pm 2\%$ $\pm 0,2$ V Courant Continu
- Eclairage de l'écran
- Possibilité de garder affichées les mesures lors des opérations de soudage.

Les afficheurs indiquent les valeurs moyennes de la tension et du courant (DC) / valeurs moyennes rectifiées (AC).

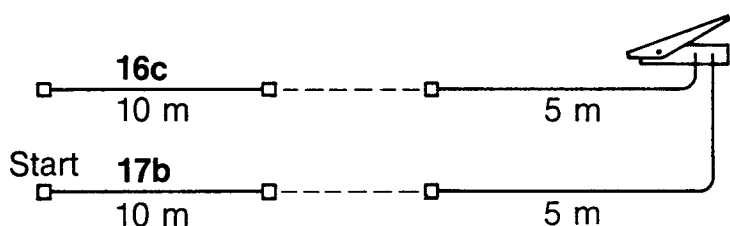
REMARQUE! Le voltmètre indique la polarité de la machine. Il faut remarquer que la tension de l'arc pendant le soudage (avec de forts courants et de longs câbles) est inférieure de plusieurs volts par rapport à la tension aux bornes.



C 100C
C 100D



C 100P



C 100F

C 100C	6185410
C 100D	6185413
C 100P	6185424
C 100F	6185405
PSM 10	6185651

16a / 1,5 m	6185454
/ 10 m	6185455

16b / 10 m	6185456
-------------------------	---------

16c / 10 m	6185451
/ 25 m	6185452
/ 50 m	6185453

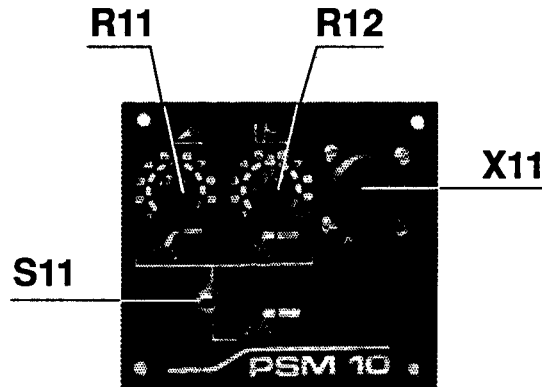
17b /10 m	6185310
------------------------	---------

- 16a** Kaukosäätökaapeli 7-nap.
Kabel för fjärreglage 7-pol.
Cable for remote control 7 poles
Kabel für Fernregelung 7-pol.
Kabel voor afstandsbediening 7-polig
Câble commande à distance 7 pôles
- 16b** Kaukosäätöjatkokaapeli 7-nap.
Förlängningskabel för fjärreglage 7-pol.
Extension cable for remote control 7 poles
Verlängerungskabel für Fernregelung 7-pol.
Verlengkabel voor afstandsbediening 7-polig
Rallonge de câble pour commande à distance 7 pôles
- 16c** Kaukosäätöjatkokaapeli 4-nap.
Förlängningskabel för fjärreglage 4-pol.
Extension cable for remote control 4 poles
Verlängerungskabel für Fernregelung 4-pol.
Verlengkabel voor afstandsbediening 4-polig
Rallonge de câble pour commande à distance 4 pôles
- 17b** Käynnistysjatkokaapeli
Startförlängningskabel
Start extension cable
Startverlängerungskabel
Start verlengkabel
Rallonge câble de démarrage

PSM-lisätoimintayksiköt
PSM-tillsatsatsenheter
Auxiliary functional units PSM
PsM-zusatzfunktionseinheit
Hulpfunctie-units PSM
Unités de réglage et de contrôle PSM

PSM 10

6185651



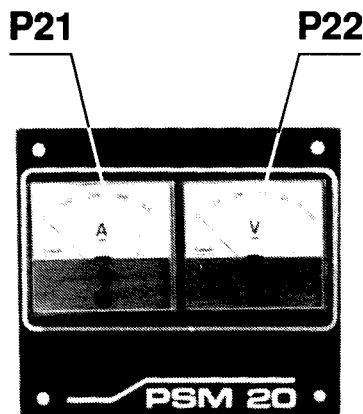
R11 Ei käytössä
 Inte i bruk
 No operation
 Keine Funktion
 Geen functie
 Pas en service

R12 Aloitusvirran säätö (puikkohitsaus)
 Inställning för startström (MMA-svetsning)
 Control of ignition pulse current (MMA welding)
 Einstellung für Zündstrom (Stabelektroden-schweißen)
 Startroomregeling (elektrodenlassen)
 Commande du courant d'amorçage (soudage à l'électrode)

S11 Normaali-/täppäysominaiskäyrien valintakytkin
 Väljare för normal-/droppsvetsningkaraktäristika
 Selecting switch for normal-/point to point welding characteristics
 Wahlschalter für Normal-/Steppnahtschweiß-Charakteristika
 Keuzeschakelaar voor normaal-/intervallassen
 Commutateur de sélection des caractéristiques de soudage normal/point par point

PSM 20

6185652



S12 Normaali MIG-MAG/pulssi-MIG-ominaiskäyrien valintakytkin
 Väljare för normal MIG-MAG/puls-MIG-svetskaraktäristika
 Selecting switch for normal MIG-MAG/pulse-MIG welding characteristics
 Wahlschalter für Normal-MIG-MAG/Puls-MIG-Schweiß-Charakteristika
 Keuzeschakelaar voor normaal MIG-MAG/puls-MIG-lassen
 Commutateur de sélection des caractéristiques de soudage MIG-MAG normal / MIG pulsé.

X11 Liitin jännite- ja virtamittaukseen (MU)
 Anslutning för spännings- och strömmätning (MU)
 Connector for voltage and current measuring (MU)
 Anschluß für Messung von Spannung und Strom (MU)
 Aansluiting voor Volt- en Ampèremeter (MU)
 Connecteur pour afficheur courant / tension (MU)

P21 Virtamittari
 Strömmätare
 Current meter
 Meßgerät für Strom
 Ampèremeter
 Ampèremètre

P22 Jännitemittari
 Spänningsmätare
 Voltage meter
 Meßgerät für Spannung
 Voltmeter
 Voltmètre

OPERATION SAFETY

Never watch the arc without a face shield designed for arc welding!

The arc damages unprotected eyes!

The arc burns unprotected skin!

Be careful for reflecting radiation of arc!

Protect yourself and the surroundings against the arc and hot spray!

Don't use power source for melting of frozen pipes!

Remember general fire safety!

Pay attention to the fire safety regulations. Welding is always classified as a fire risk operation.

Welding where there is flammable or explosive material is strictly forbidden.

If it is essential to weld in such an area remove inflammable material from the immediate vicinity of the welding site.

Fire extinguishers must always be on site where welding is taking place.

Note! Sparks may cause fire many hours after completion of welding.

Watch out for the mains voltage!

Take care of the cables - the connection cable must not be compressed, touch sharp edges or hot work pieces.

Faulty cables are always a fire risk and highly dangerous.

Do not locate the welding machine on wet surfaces.

Do not take the welding machine inside the work piece (i.E. In containers, cars etc.)

Ensure that neither you nor gas bottles or electrical equipment are in contact with live wires or connections!

Do not use faulty welding cables.

Isolate yourself by using dry and not worn out protective clothes.

Do not weld on wet ground.

Do not place the TIG torch or the welding cables on the power source or other electrical equipment.

Be careful of TIG ignition pulse voltage!

Don't press on torch switch, if the torch is not directed towards work piece.

Don't use wet TIG torch.

Do not use damaged TIG torch.

Watch out for the welding fumes!

Ensure that there is sufficient ventilation.

Follow special safety precautions when you weld metals which contain lead, cadmium, zinc, mercury or beryllium.

Note the danger caused by special welding jobs!

Watch out for the fire and explosion danger when welding container type work pieces.

TERMS OF GUARANTEE

KEMPPI OY provides a guarantee for products manufactured and sold by them if defects in manufacture and materials occur. Guarantee repairs must be carried out only an Authorized KEMPPI Service Agent. Packing, freight and insurance costs to be paid by third party. The guarantee is effected on the day of purchase. Verbal promises which do not comply with the terms of guarantee are not binding on guarantor

Limitations on guarantee

The following conditions are not covered under terms of guarantee: defects due to fair wear and tear, non-compliance with operating and maintenance instructions, connection to incorrect or faulty supply voltage (including voltage surges outside equipment spec.), incorrect gas pressure, overloading, transport or storage damage, fire or damage due to natural causes i.e. lightning or flooding.

This guarantee does not cover direct or indirect travelling costs, daily allowances or accomodation.

Note: Under the terms of the guarantee, Welding torches and their consumables, feed, drive rollers and feeder guide tubes are not covered.

Direct or indirect damage due to a defective product is not covered under the guarantee.

The guarantee is void if changes are made to the product without approval of the manufacturer, or if repairs are carried out using non-approved spare parts. The guarantee is also void if repairs are carried out by non-authorized agents.

Guarantee period

The guarantee is valid for one year from date of purchase, provided that the machine is used for single-shift operation. The guarantee period for double and treble shift operation is six months and four months respectively.

Undertaking guarantee repairs

Guarantee defects must be informed to KEMPPI or authorised KEMPPI Service Agents within the guarantee period. Before any guarantee work is undertaken, the customer must provide proof of purchase and serial number of the equipment in order to validate the guarantee. The parts replaced under the terms of the guarantee remain the property of KEMPPI. Following the guarantee repair, the guarantee of the machine or equipment, repaired or replaced, will be continued to the end of the original guarantee period.

GENERAL

The Kempotig 4500 AC/DC is a multi-purpose power source based on inverter techniques. The Kempotig 4500 AC/DC is suitable for MMA and TIG welding as well as carbon arc gouging with AC and DC.

Welding method		Material		
		Fe	Ss	Al
Puikko	DC: 15 - 450 A	x	x	x
	AC: 20 - 450 A	x	x	–
TIG	DC: 10 - 450 A	x	x	–
	AC: 15 - 450 A	–	–	x

x = yes – = not used

Fe = steel, Ss = stainless steel, Al = aluminium

The units recommended to be used with the Kempotig 4500 AC/DC:

TIG high frequency units: Kempotig 50
 Cooling water circulation unit: WU 10
 Remote control units: C 100C (MMA / TIG)
 C 100D (MMA / TIG)
 C 100P (lång pulse control unit / TIG)
 C 100F (foot pedal / TIG)
 Transport units: T50 (option to use two cylinders)

The operation of the Kempotig 50 and WU units are explained in their operation instructions. The fitting of the units to trolleys has been explained in the accompanying fitting instructions.

INSTALLATION

Siting the machine

A distance of at least 20 cm between the rear of the machine and any surrounding object must be ensured to allow good circulation of the cooling air through the machine.


Metal and carbon dust are not good to the operation of the machine, so it is very important that the machine is positioned away from the line of particle spray, created by grinding tools etc.

If the machine is used in an outside environment, it is advisable to cover the machine with a waterproof sheet for extra protection, but in no way must the flow of cooling air be obstructed.

Connection to main supply

(see picture on page 5)

Connection of the connection cable to the mains supply should only be carried out by a competent electrician.

For connection of the mains cable remove the cover of the machine. The cable is entered to the machine through the inlet ring on the rear panel of the machine and fastened with cable clamp. The phase leads of the connection cable are coupled to connections L1, L2 and L3. The earth-protection lead, coloured green-yellow, is coupled to the earthing screw marked thus .

Sizes of the connection cable and fuse rating for the machine at 100% duty cycle loading, are specified in the table below.

Connection voltage	400 V
Fuses (delayed)	35 A
Connection cable	4 × 6 mm ²

Tolerance of the mains supply voltage

The Kempotig 4500 AC/DC was designed to operate from a standard 380...415 V (50 / 60 Hz) supply without any alterations or adjustments in connections to the machine.

OPERATION

Main switch (S1)

The machine becomes live when the main switch on the fascia panel is turned from the zero position to position I. At the same time the pilot lamp by the main switch is illuminated.

Operation of the cooling fan

The machine has a thermostatically-controlled cooling fan which does not run until the temperature is reached.

Idling voltage

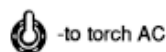
Idling voltage of the machine is always regardless of the selected current type (DC, AC) direct current voltage, approx. 80 V DC.

Current type pre-selecting for each method (S2-3)

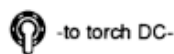
Before you start welding, you have to program required current type for each method (DC-, DC+ tai AC) on the front panel switches (S2-3) of the power source.



S3 TIG



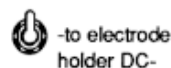
-to torch AC



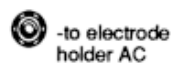
-to torch DC-



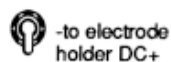
S2 MMA



-to electrode holder DC-



-to electrode holder AC



-to electrode holder DC+


The power source identifies the welding method in use and gives the required current type automatically for the welding method in requestion.

TIG: when the start switch of the torch is pressed

MMA: when the MMA remote control unit is connected on the control connector on the rear panel of the machine or when in TIG / MMA-, systems there is a change over to MMA welding.

Due to current type pre-selecting for each method, the change over from one method to another of multi-method weldings (TIG / MMA) can be done from the working place without having to touch the wiring or switches of the power source.

AC balance control (R1)

In AC welding () the length ratio of positive and negative halfcycles is controlled with potentiometer R1.

The balance control doesn't change the frequency of alternating current (AC).

The balance control is in operation both in AC-TIG- and AC-MMA welding and the control is indicated by the green signal light V1.

In AC-TIG welding, the penetration and cleaning of the seam are influenced on by the balance control:



max. penetration (approx. 30 % electrode positive) max. cleaning (approx. 70 % electrode positive)

The middle position (0) is the recommended initial position for R1.

Auxiliary voltage supply (X2)

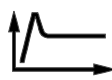
Power supply of the cooling water circulation unit and/or gas preheater 220 V 440 VA 1~. Power supply is protected with 2 A fuses F3 and F4.

AUXILIARY FUNCTIONAL UNITS PSM

The auxiliary function unit PSM can be mounted fixed on the front panel of the power source (see page 12). Isolate the plug of the power source from the main supply and wait at least 2 minutes before mounting the PSM unit. Follow carefully the mounting instructions delivered with the unit.

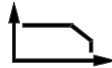
PSM 10 operations

Start current control in MMA welding (R12)

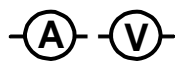
 Start current is automatically controlled with the growth of welding current. The relative level of start current is controlled with the potentiometer R12.

Recommended initial position: approx. 5-6

Change of characteristic curve in MMA welding (S11)

 OFF-position: Normal MMA welding
ON-position: Point to point welding

Meter connection (X11)

 To the connector X11 can be connected external meter equipment MU for monitoring of welding current and voltage.

Note! The voltage meter shows pole voltage of the machine. Note that arc voltage is even many volts lower than pole voltage in welding with high currents and long cables.

Meter unit PSM 20

The unit is designed for the control and measurement of the current and voltage in such cases where the accuracy demand is not high. The accuracy of the meter indications are $\leq 4\%$ of their full scale indications. The meters indicate the average values of voltage and current. The note in previous paragraph is also valid here.

ASSEMBLY AND OPERATION OF WELDING EQUIPMENT

The cable connection of the welding equipment combinations for MMA and TIG welding are illustrated on pages 6 - 8. Connect the cables according to the connection diagrams accompanying with the transport units.

Note! When the welding equipment has been assembled, no changes in connections of current cables and control cable are necessary in change over of welding method or current type.

Note! In multi-method use you have to note that electrode holder and TIG torch which are connected to the equipment, are all live when welding is done with one of methods.


Note! Before you start welding, always control that the cooling water circulation unit is switched on and the cooling liquid circulates through the water-cooled torch.

Note! In the water-cooled TIG/MMA equipment the cooling water circulation unit has to be switched on also during MMA welding if MMA welding current is controlled from the remote control unit which is connected to the Kempotig 50.

Use of MMA equipment

Connect the cables as illustrated on page 6.

Current type selection

Set switch S2 to required position (-, , +) or select the current type with switch of remote control unit C 110M.



Welding current control

Current is controlled from the remote control unit which is connected to the power source (page 9).

Use of TIG/MMA equipment

Connect the cables as illustrated on page 7.

Current type selection

TIG-welding: Set switch S3 to required position (, -)
MMA welding: Set switch S2 to required position (-, , +)

Control of TIG welding current

When the torch switch is pressed, the power source gives the current type set into switch S3 and the current control is done from the remote control unit which is connected to the Kempotig 50.

Change of TIG/MMA method and MMA current control

Set the I/O switch of the Kempotig 50 into position zero. The power source is started and gives the pre-selected current type for MMA welding (S2). MMA welding current is controlled from the remote control unit which is connected to the Kempotig 50.

Use of balance control switch (R1) in AI-TIG welding

With help of balance control, penetration/cleaning effect of seam is optimised in AI-TIG welding. Before welding, set R1 into middle position (zero). When you turn the potentiometer clockwise, positive half-cycles become longer, cleaning effect becomes more effective, penetration becomes smaller and electrode temperature goes up. When you turn counterclockwise, the effects are opposite.

The balance control also can be used in order to keep the electrode tip shape as the best possible. When the length of positive half-cycle is increased, the electrode tip becomes more ball-shaped.

OPERATION DISTURBANCES

In order to locate an operation disturbance, the steps in the following instructions should be taken. For operation problem reason may be caused by bad electrical connections in the welding cables or intermediary cables, or by wrong position of one of the control switches of units.

Before finding out the reason for an operation disturbance connect the remote control unit on the control connector of the power source. If a continuous idling noise is generated by the machine, then the cause of the problem is probably outside of the power source.

Loss of a phase in the mains supply

The overvoltage releasing of the machine may operate if there is a very short (less than 1 s) break in the mains supply. Normal operation is then returned by resetting once with the main switch of the machine.

A very common fault situation is the loss of one phase to the machine. The most common reasons are through-burning of a mains supply fuse, or a bad connection in the plug of the mains connection cable or on the terminal block.

The loss of one phase is not always indicated by the pilot lamp on the front panel of the machine, but it can be recognized by the very poor welding characteristics achieved.

Operation of the overvoltage releasing

The machine has an overvoltage releasing which stops the operation if the welding pole voltage exceeds 100 V. The operation is restored by resetting with the main switch.

Operation of the overload protections

The overload protections (thermal protections) of the machine operation if the machine is continuously loaded above the rated values. The protection may also operate if a blocked dust filter prevent the flow of cooling air through the machine.

The machine cannot be returned to operation until it has cooled down to a lower temperature and the operation of the protection has been reset with the main switch.

Take the following steps:

- reset once with the main switch (I → O → I)
- if the machine does not start, wait 10-20 minutes until the cooling fan cools the machine.
- after the cooling down period, a further resetting with the main switch (I → O → I) restores the machine to welding conditions.

Main fuse of the machine (F1)

Isolate the plug of the machine from the mains supply and wait at least 2 minutes before loosening the front grate. (See page 4).

It is very important that it is replaced with a fuse of same type and rating which is marked on collar of fusebox. Damage caused by a wrong type fuse, is not covered by the guarantee.

Control fuse (F2)

The Kempotig 50 unit receives its operating voltage from connector on rear panel of the power source. As protection of auxiliary transformer of the power source there is an 8 A slow-blow cartridge fuse beside the connector (see page 4). The fuse is in safety voltage circuit (30 V AC). If the failure of this fuse is apparent, some of the possible causes are as follows:

- damage intermediary cable (short circuit)
- damage remote control unit or its cable.

MAINTENANCE

The amount of use and the working environment should be taken into consideration when planning the frequency of maintenance of the Kempotig 50. Careful use and preventive maintenance will help to ensure trouble-free operation.

Cleaning of the dust filter

(see page 5)

The cleaning of the machine's dust filter should be performed at regular intervals, the regularity of which is dependent upon the machine's working environment.

The cleaning is recommended to be done at least once every 3 months when the machine is in constant use.

Isolate the plug of the machine from the mains supply and wait at least 2 minutes before removing the machine's front grate cover. When the dust filter is removed, live parts are exposed, where line AC and high voltage DC are present.

The maintenance is performed as follows:

- Remove the front grate of the machine (2 screws)
- Remove the fastening screws holding the dust filter (2 pc)
- Wash the filter carefully with water and if necessary a detergent based degreasing solvent can be added e.g. dish washing liquid.
Do not use inflammable liquids.
- Check the condition of the filter. If for example the aluminium filler material has come out from its support frame, or it is damaged in any other way, it has to be replaced with a new one.
A damage filter can cause a short circuit or other damage in live parts of the machine and serious damage may result.
- Refasten the dry filter in place.
The screws have to be fitted with locking plates.
- Refasten the front grate to the machine

Regular maintenance

The major points in the maintenance procedure are listed as follows:

- cleaning of the machine
- maintenance of the dust filter
- checking of the connectors
- checking of the switches and potentiometers
- checking of the condition and mounting of the mains cable and plug
- checking and tightening of the connections inside the machine
- damage parts or parts in bad condition are replaced by new ones
- maintenance testing. Operation and performance values of the machine are checked and adjusted when necessary by means of test equipment.

In the case of operation disturbances, contact an authorized KEMPPi Service Repair Shop. Check the maintenance parts before sending the machine to the service shop.

TECHNICAL DATA

Kempotig 4500 AC/DC		
Connection voltage	3 ~, 50 / 60 Hz	400 V
Rated power	60 % ED	26,3 kVA
	100 % ED	22,8 kVA
Maximum load	80 % ED	450 A / 38 V
	100 % ED	390 A / 35,6 V
Control ranges	DC	10...450 A
	AC	15...450 A
Welding current control		stepless
Idling voltage		approx. 80 V DC
Frequency of welding current with AC	I > 200 A	45 Hz
	I < 200 A	variable 45...100 Hz
Efficiency		85 % (450 A / 40 V)
Power factor		0,9 (450 A / 40 V)
Idling power		approx. 150 W
Frequency		max. 5 kHz
Storage temperature range		-40...+60 °C
Operation temperature range		-20...+40 °C
Temperature class		B (130 °C)
Degree of protection		IP 23
Allowable control units		C remote control units, Kempotig 50
Auxiliary function units		PSM 10 and 20
Supply voltage for control units		30 V AC (240 VA / 100 % ED)
Supply for cooling water circulation unit (WU), gas preheater		2 x 220 V AC (total 440 VA / 100 % ED)
Dimensions	length	840 mm
	width	360 mm
	height	610 mm
Weight		126 kg

The products meet conformity requirements for CE-marking.