

Feed 400

0024

Operation instructions

1923600E

Feed 400

English



Read these instructions carefully 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 !

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



KEMPPi

English

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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!

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! Spars 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 MIG gun or the welding cables on the power source or other electrical equipment.
- Don't press on mig gun switch, if the gun is not directed towards work piece.

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

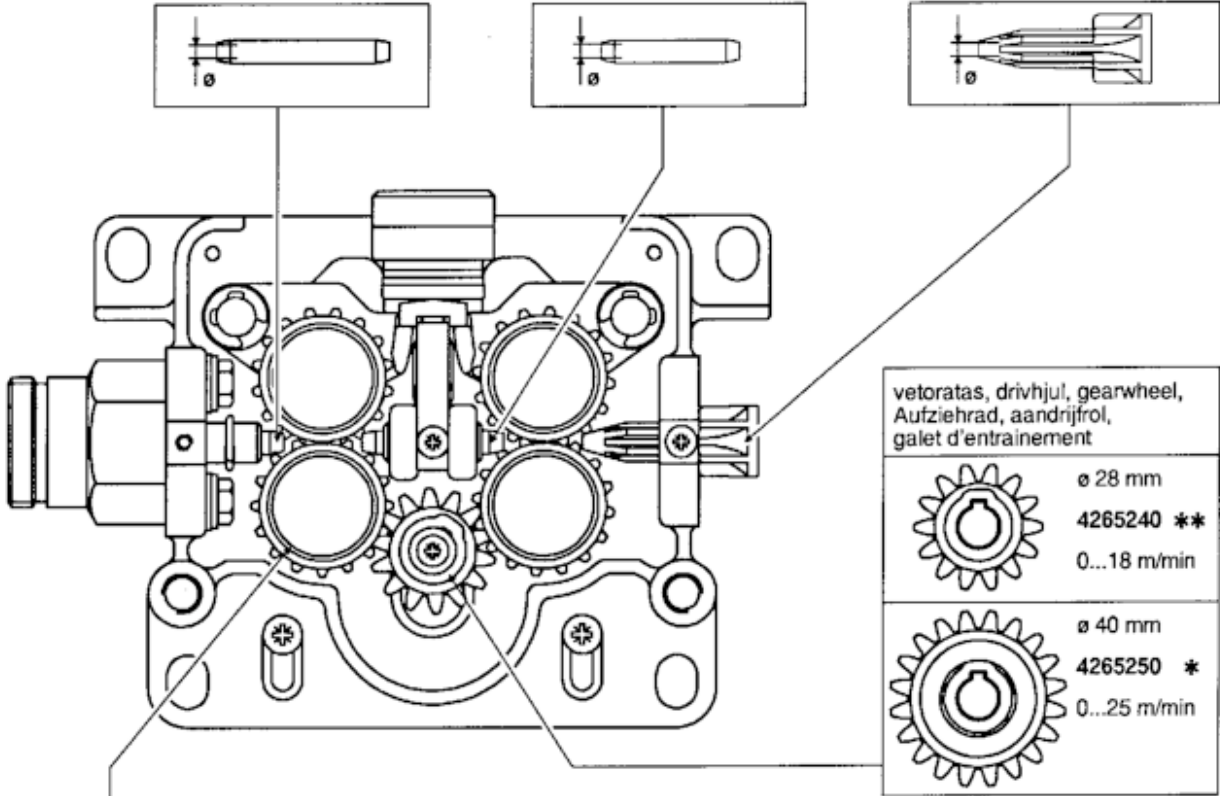
Guarantee defects must be informed to KEMPPI or authorised KEMPPI Service Agents within the guarantee period. Before any guarantee work is undertaken, the customer must provide proof of purchase and serial number of the equipment in order to validate the guarantee. The parts replaced under the terms 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.

PARTS OF WIRE FEED MECHANISM

English

Fe Mc Fc	0,6...0,8 (0.030)	ø 1,0 3134140 valkoinen, vit, white, weiß, wit, blanc	ø 2,0 3134120 ** oranssi, orange, orange, orange, oranje, orange	ø 2,0 4267220 ** muovi, plast, plastic, Kunststoff, plastic, plastique
	0,9...1,6 (0.035...1/16)	ø 2,0 3133700 ** oranssi, orange, orange, orange, oranje, orange		ø 4,0 4270180 muovi, plast, plastic, Kunststoff, plastic, plastique
	1,6...2,4 (1/16...3/32)	ø 4,0 3134130 sininen, blå, blue, blau, blauw, bleu	ø 4,0 3134110 sininen, blå, blue, blau, blauw, bleu	ø 4,0 4267030 messinki, mässing, brass, Messing, messing, laiton
Ss Al	0,8...1,6 (0.030...1/16)	ø 2,0 3134290 * oranssi, orange, orange, orange, oranje, orange	ø 2,0 3134300 * oranssi, orange, orange, orange, oranje, orange	ø 2,0 4267220 muovi, plast, plastic, Kunststoff, plastic, plastique
	1,6...2,4 (1/16...3/32)	ø 3,0 3134710 keltainen, gul, yellow, gelb, geel, jaune	ø 3,0 3134720 keltainen, gul, yellow, gelb, geel, jaune	ø 4,0 4270180 muovi, plast, plastic, Kunststoff, plastic, plastique

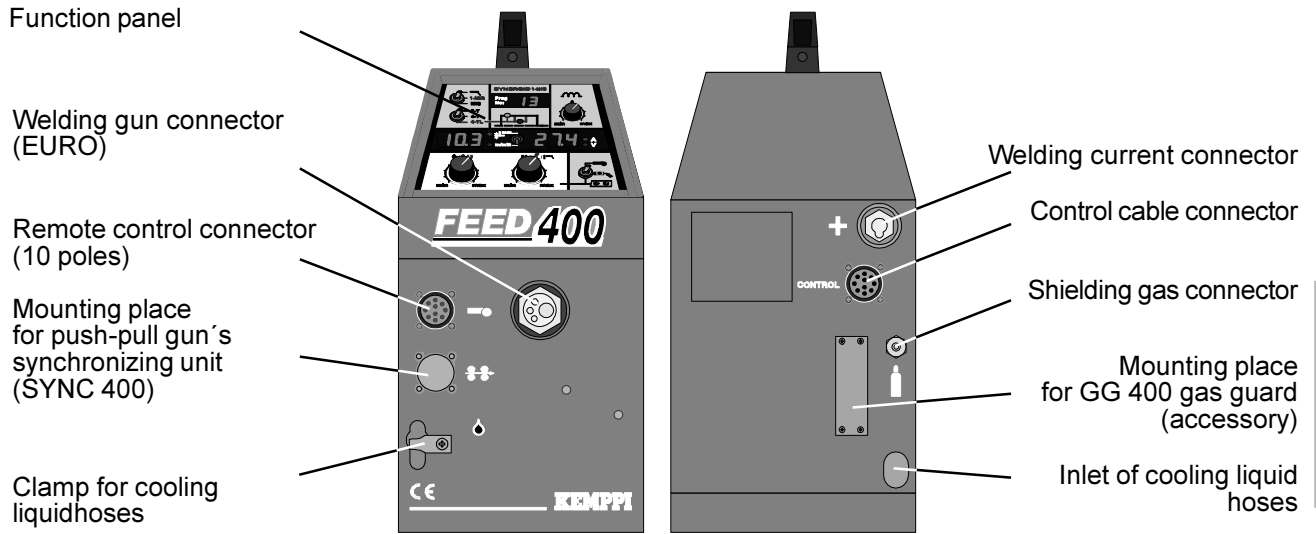


	mm (in)	0.8 (0.030)		0.6 ---		0.9...1.0 (0.035)		1.2 (0.045... 0.052)		1.4...1.6 (1/16)		2.0 (5/64)	
Fe Ss Al	sileä, slät, plain, glatt, glad, lisse		3133810 valkoinen, vit, white, weiß, wit, blanc			3133210 ** punainen, röd, red, rot, rood, rouge				3133820 keltainen, gul, yellow, gelb, geel, jaune			
Fe Fc	pyälletty, med räffling, knurled, gerillt, groef, cranté		---			3133940 punainen, röd, red, rot, rood, rouge				3133990 keltainen, gul, yellow, gelb, geel, jaune			
Al	U-ura, U-spår, U-groove, U-Nut, U-spoor, gorge U		---			3133960 punainen, röd, red, rot, rood, rouge				---			

* kuuluu toimitusvarustukseen ingår vid leverans inkludert i leveransen inkluderet ved levering included in delivery ist im Lieferumfang enthalten met de zending meegeleverd compris dans la livraison

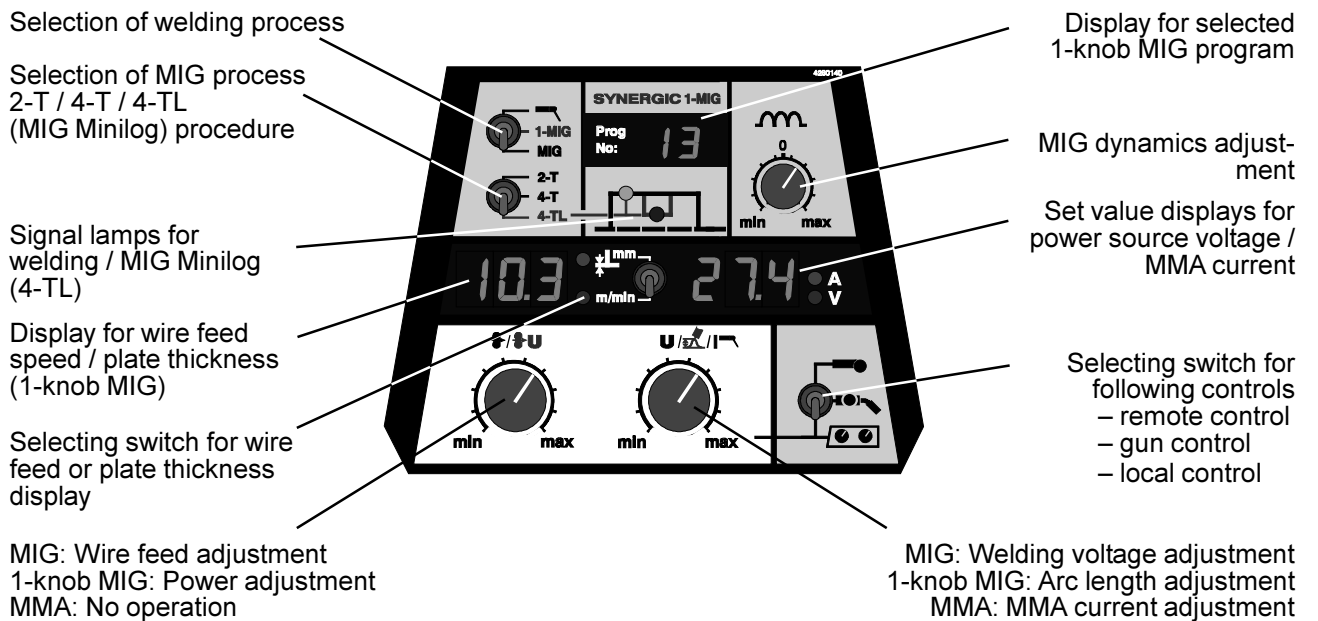
** kuuluu toimitusvarustukseen asennettuna ingår vid leverans, monterad inkludert i leveransen, monteret inkluderet ved levering, monteret included in delivery, mounted ist im Lieferumfang enthalten, montiert met de zending meegeleverd, gemonteerd compris dans la livraison, monté

OPERATION CONTROL AND CONNECTORS



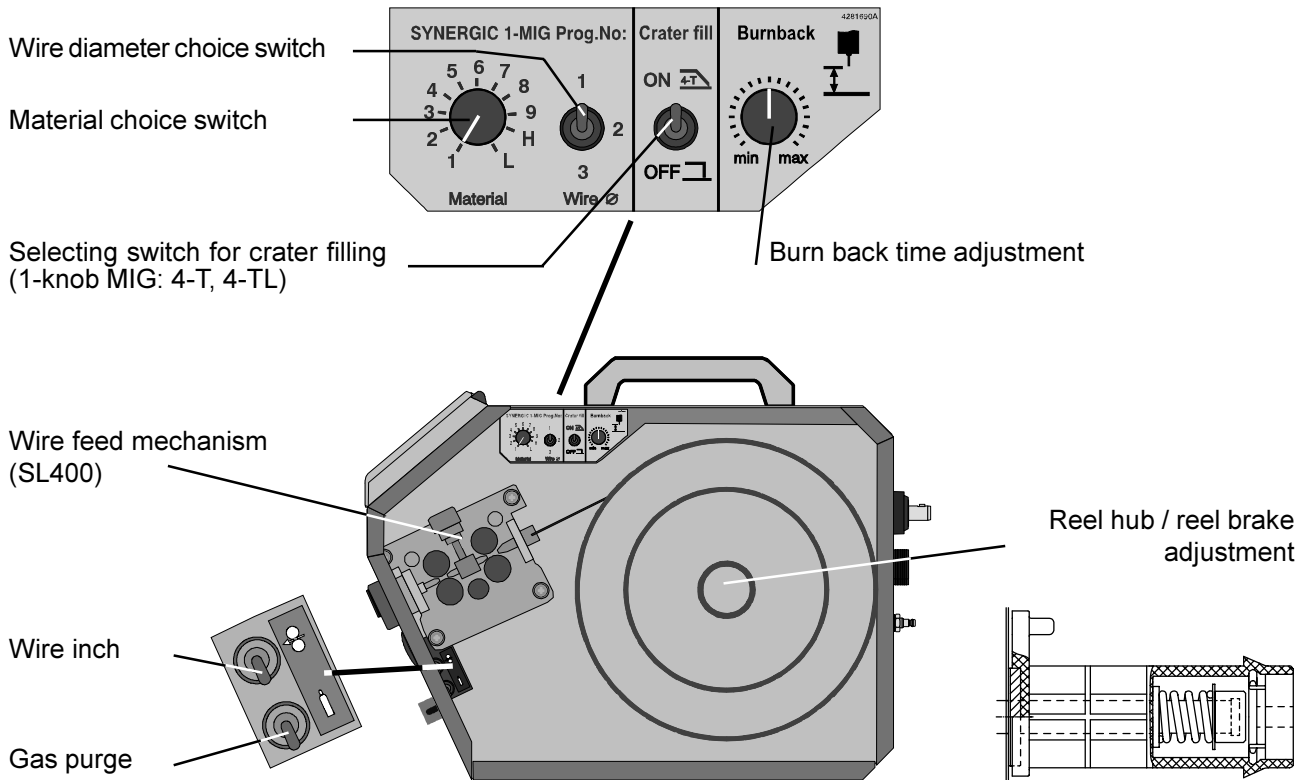
English

Function panel



Function panel for synergic 1-knob MIG

Program selections for 1-knob MIG



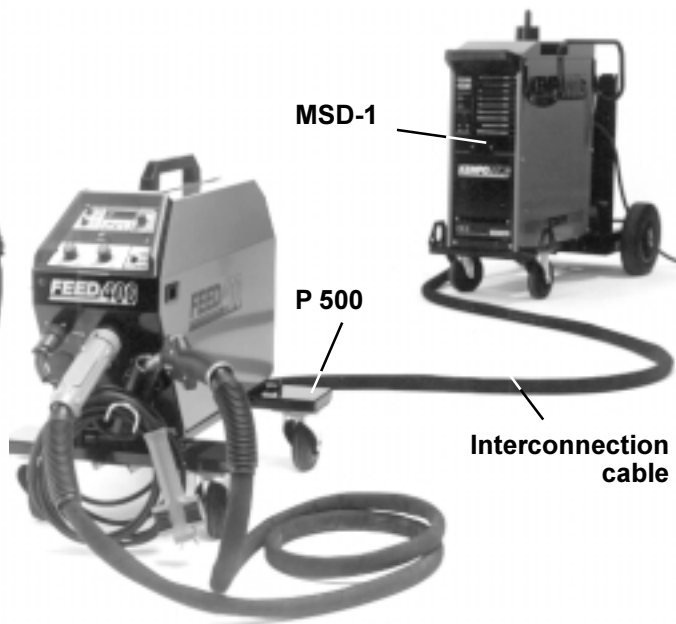
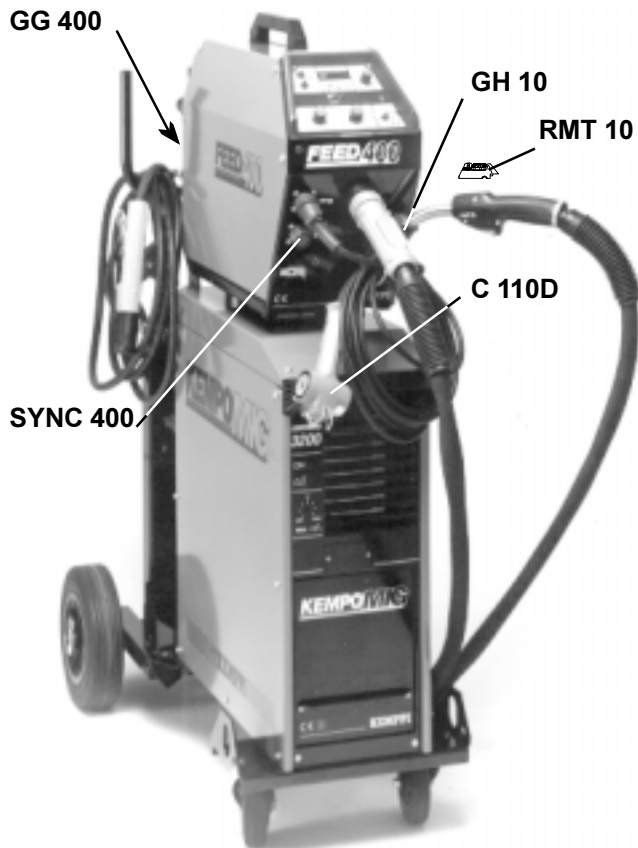
Guide sticker for 1-knob MIG programs (on reel cabinet door)

SYNERGIC 1-MIG programs					
Prog.No:		∅	Material	Gas	
	1	11	0.8 Fe	CO2	
	2	12	1.0 Fe	CO2	
	3	13	1.2 Fe	CO2	
	1	21	0.8 Fe	Ar 15-25%CO2	
	2	22	1.0 Fe	Ar 15-25%CO2	
	3	23	1.2 Fe	Ar 15-25%CO2	
	1	--	no program		
	2	--	no program		
	3	33	1.2 FeMC	Ar 15-25%CO2	
	1	--	no program		
	2	--	no program		
	3	43	1.2 FeFCR	Ar 15-25%CO2	
	1	51	0.8 Ss	Ar 2%CO2,O2	
	2	52	1.0 Ss	Ar 2%CO2,O2	
	3	53	1.2 Ss	Ar 2%CO2,O2	

	1	--	no program		
	2	62	1.0 AlMg5	Ar	
	3	63	1.2 AlMg5	Ar	
	1	--	no program		
	2	72	1.0 AlSi5	Ar	
	3	73	1.2 AlSi5	Ar	
	1	--	no program		
	2	--	no program		
	3	83	1.2 SsFCR	Ar 15-25%CO2	
	1	91	0.8 CuSi3	Ar	
	2	92	1.0 CuSi3	Ar	
	3	--	no program		
	1	--	no program		
	2	H2	1.0 Ss309	Ar 2%CO2,O2	
	3	H3	1.2 Ss309	Ar 2%CO2,O2	
	1	--	no program		
	2	--	no program		
	3	--	no program		

4281700A

LIST OF PRODUCTS



English

Marking of interconnection cable item:

Example: KW 50-5-WH

- KW = identification letters
- 50 = welding cable cross-section mm²
- 5 = nominal reach in meters
- W = liquid cooling, G = air cooling
- H = protective shield

Power sources

Kempomig 3200	6227320
Kempomig 3200W	6227325
Kempomig 4000	6227400
Kempomig 4000W	6227405

Accessories:

MSD 1 V/A metering unit	6185666
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Wire feeder units

FEED 400	6237400
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Accessories:

C 110D remote control unit	6185421
SYNC 400	6263120
GG 400 gas guard	6237405
GH 10 gun holder	6256010
P500 transport unit	6185265
KV400 swing arm	6185247
– KV400 50-1.5-GH (cable)	6260351
– KV400 50-1.7-WH (cable)	6260353

MIG guns

Air-cooled:

MT 32	3 m	6253023
MT 32	4,5 m	6253024
MT 38	3 m	6253038
MT 38	4,5 m	6253039
PMT 30	3 m	6253013
PMT 30	4,5 m	6253014
PMT 40	3 m	6254013
PMT 40	4,5 m	6254014

Liquid-cooled:

MT 41W	3 m	6254036
MT 41W	4,5 m	6254037
MT 51W	3 m	6255046
MT 51W	4,5 m	6255047
PMT 41W	3 m	6254028
PMT 41W	4,5 m	6254029
PMT 51W	3 m	6255033
PMT 51W	4,5 m	6255034

Accessories (PMT...):

RMT 10	6185475
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Interconnection cables

Interconnection cables Kempomig 3200, 4000 /

FEED 400	
KW 50-1.3-GH	6260350
Multimig 50-5-GH	626010401
Multimig 50-10-GH	626010601

Interconnection cables Kempomig 3200W, 4000W

/ FEED 400	
KW 50-1.5-WH	6260352
KW 50-5-WH	626035401
KW 50-10-WH	626035601

MMA cable

MMA cable 5 m	6184501
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Return current cable

5 m - 50 mm ²	6184511
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GENERAL

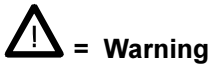
FEED 400 is wire feeder unit in the KEMPOMIG product range, designed for demanding professional use.

Operation controls of the FEED 400 are managed from versatile and easy to use function panel. Synergic 1-knob MIG function of the FEED 400 enables adjustments for MIG welding from only one control knob. The unit has preset programs for the most common materials and gases. Plate thickness display, connected with 1-knob MIG functions, guides the operator to find the correct welding values.

4-roll drive of wire feed mechanism ensures stable wire feed. Max. wire feed speed can be either 18 m/min or 25 m/min. The FEED 400 is designed for both liquid-cooled and gas-cooled guns.

By delivery the FEED 400 is equipped for steel welding. With the unit are delivered accessories, which make possible welding of aluminium and stainless steels. In the accessories is included also lift hook for hanging onto boom.

Product	Name	Operation / mounting instruction
Wire feeder unit	FEED 400	1923600
Push-pull gun's synchronizing unit	SYNC 400	
Gas guard	GG 400	
Transport unit	P500	4272000
Swing arm	KV400	3142890
Power sources	Kempomig 3200, 3200W, 4000, 4000W	1922380
Volt/Ampere metering unit	MSD-1	1918610
MIG guns	PMT range PMT 30, 40 PMT 41W, 51W	1925570 1925660
	MT range MT 32 MT 38 MT 41W MT 51W	1925440 1925340 1925480 1925490



FEED 400 TECHNICAL DATA

Working voltage (safety voltage)		30 VAC 50/60 Hz
Rated power		150 VA
Loading capacity	60 % ED	400 A
	100 % ED	310 A
Operation principle		4 roll drive
Diameter of feed roll		32 mm
Wire feed speed	I	0...18 m / min
	II	0...25 m / min
Filler wires	∅ Fe, Ss	0,6...1,2 mm
	∅ Filler wire	0,8...1,6 mm
	∅ Al	1,0...1,6 mm
Wire reel	max. weight	20 kg
	max. size	∅ 300 mm
Gun connector		Euro
Operation temperature range		-20...+40 °C
Storage temperature range		-40...+60 °C
Degree of protection		IP 23C
Dimensions	length	570 mm
	width	210 mm
	height	440 mm
Weight		15 kg

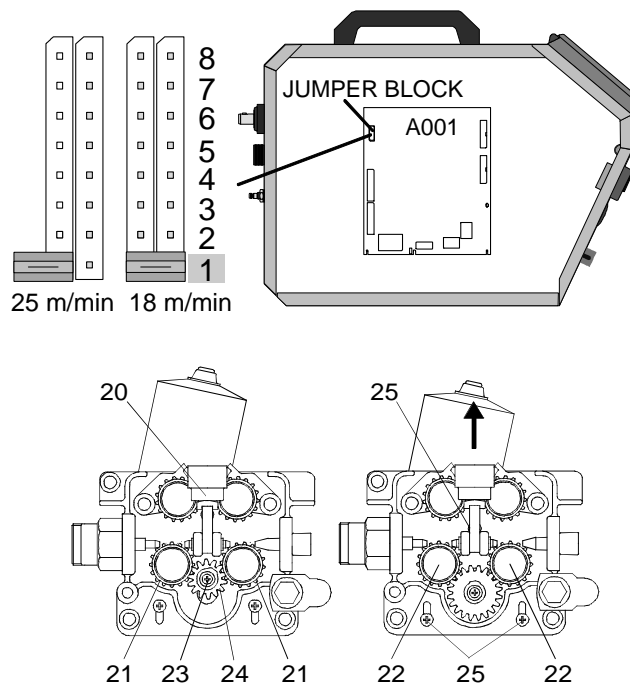
The product meets conformity requirements for CE-marking.

ASSEMBLY OF MIG EQUIPMENT

KEMPOMIG power source: Read the paragraph INSTALLATION in the operation instructions (1922380E) for the power source in question.

FEED 400 wire feeder unit:

1. Mount the wire feeder onto shaft, which is on top of power source. The shaft must have plastic insulation / bear bushing.
2. Mount the control cable of the interconnection cable and the welding current cable to connectors on the rear wall of the FEED 400. Select the MIG gun's polarity (+ or -) according to welding wire you are using.
3. If the MIG gun is liquid-cooled, mount the cooling liquid hoses of the interconnection cable through the wire feeder unit and lock them at their place. If necessary open the side plate of the FEED 400.
4. Mount the MIG gun to EURO connector on the front wall of the FEED 400.
Use guide tubes and contact tips according to manufacturer's operation instructions. Accessories which are too tight or otherwise unsuitable for the wire type used by you, will cause wire feed disturbances.
5. If you mount the FEED 400 onto boom, see that the wire feeder unit's chassis is without galvanic contact to boom.
6. Max. wire feed speed
When the unit is delivered the max. wire feed speed is 18 m/min, which is enough for the most welding works. If you need a higher speed, you can increase the max. wire feed speed to 25 m/min by replacing the gear wheel on motor shaft to a bigger one as well as through change of jumper on the control card. The big gear wheel (D40) belongs to delivery kit of the FEED 400.



When necessary speed is changed according to following:

- Open side plate and move JUMPER BLOCK's first coding piece on control card A001 to point 25m/min.
- Open tightening lever (20). Remove lower feed rolls (21). Release screw (23) and its washer. Remove gear wheel D28 (24) from motor shaft.
- Loosen screws (25) (3 pc) 1 twist. Mount the D40 gear wheel onto motor shaft. Screw the screw (23) with its washer back.
- Put feed rolls (21) back to their axles, however don't fasten yet fastening screws of the feed rolls (22).
- Lift the motor so that the tooth gap between gear wheel and both lower feed rolls is approx. 0,2 mm.
- Tighten screws (25). Check gear teeth gaps, when necessary put the motor into a better position. Screw on the mounting screws of feed rolls (22).



Too small gap between gear wheel and feed rolls will overload motor.

Too big gap for its part might cause too rapid wearing for teeth of feed rolls and gear wheel.

7. Mounting of push-pull gun's synchronizing unit SYNC 400 and gas guard GG is described in the operation instructions, which are delivered with the units.

INSTALLATION

Wire feed mechanism (SL400)

Wire feed rolls are available with plain groove, knurled groove and with U groove for different purposes.

feed rolls	
colour	filler wire \varnothing mm (inch)
white	0.6 and 0.8 (0.030)
red	0.9/1.0 and 1.2 (0.035, 0.045 and 0.052)
yellow	1.4, 1.6 and 2.0 (1/16 and 5/64)
black	2.4 (3/32)
guide tubes	
colour	filler wire \varnothing mm (inch)
orange	0.6-1.6 (0.024-1/16)
blue	over 1.6 (over 1/16)

Feed rolls with plain groove:

Universal feed roll for welding of all kinds of wires

Feed rolls with knurled groove:

Special feed roll for cored wires and steel wires

Feed rolls with U groove:

Special feed roll for aluminium wires

Wire feed rolls have two grooves for different filler wire diameters. Correct wire groove is selected by moving selecting washer (28) from one side to another in feed roll.

Feed rolls and wire guide tubes have colour codes in order to make identification easier (see table on page 4). In delivery FEED 400 is equipped with red feed rolls with plain groove and with orange wire guide tubes for welding filler wires of 0.9-1.2 mm (0.035", 0.045" ja 0.052").

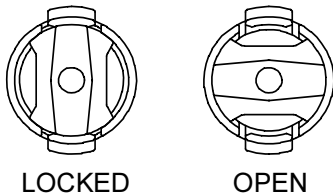
Mounting of MIG welding gun

In order to ensure trouble-free welding check in operation instructions of gun used by you that wire guide tube and contact tip of gun are according to manufacturer's recommendation suitable to be used for wire feed diameter and type in question. Too tight a wire guide tube might cause for wire feeder unit a bigger stress than normally as well as disturbances in wire feed.



Screw snap connector of gun tight that there won't come any voltage losses on connecting surface. A loose connection will heat gun and wire feeder unit.

Mounting and locking of wire reel



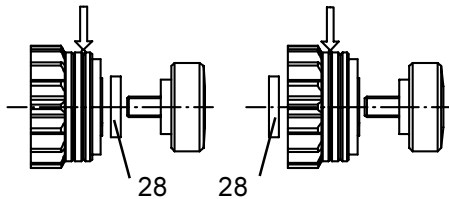
- Release locking nails of wire reel hub by turning locking knob a quarter round.
- Mount the reel at its place. Note rotating direction of reel!
- Lock the reel with locking knob, locking nails of hub remain to outside position and will lock the reel.



Check in filler wire reel that there are no parts sticking out, which could e.g. chafe against chassis or door of wire feeder unit. Dragging parts might expose chassis of wire feeder unit under voltage.

Automatic wire feed to gun

Automatic wire feed makes change of wire reel more rapid. In reel change the pressure of feed rolls need not to be released and filler wire goes automatically to correct wire line.



- Make sure that groove of feed roll matches the diameter of welding wire used. Feed roll groove is selected by moving the groove selecting washer (28).
- Release the wire end from reel and cut off the bent length. Be careful that the wire does not spill from the reel to sides!
- Straighten about 20 cm of the wire and see that the end of it has no sharp edges (file off if necessary). A sharp edge may damage the wire guide tube and contact tip of the welding gun.
- Draw a bit of loose wire from wire reel. Feed wire through back liner to feed rolls. Don't release pressure of feed rolls!
- Press the gun switch and feed a bit wire until wire goes through feed rolls to gun. See that wire is in grooves of both feed roll pairs!
- Press still the gun switch until wire has come through contact tip.

Automatic feed may sometimes fail with thin wires (Fe, Ss: 0,6...0,8 mm, Al, Fc: 0,8...1,0 mm). Then it might be possible that you must open feed rolls and feed wire manually through feed rolls.

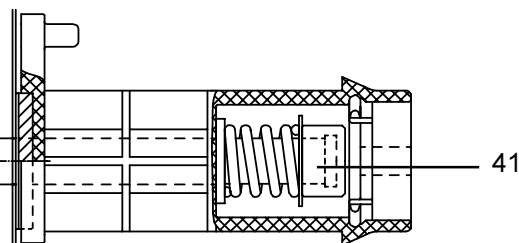
Adjustment of pressure

Adjust the pressure of feed rolls with the control screw (20) so that the wire is fed into the wire guide tube evenly and allows a little braking when coming out from the contact tip without slipping at the feed rolls.



Excessive pressure causes flattening of the filler wire and damage to the coating. It also causes undue wear of the feed rolls as well as friction.

Adjustment of tightness of wire reel brake



Brake force is adjusted through hole in locking device of reel hub by screwing the control screw (41) with screwdriver.

Adjust brake force as so big that the wire is not allowed to become too loose on the reel so that it would spill from the reel when the rotation of the reel stops. Need for brake force is increased with increase of the wire feed speed. Since the brake loads for its part the motor, you shouldn't keep it unnecessarily tight.

Ground cable

Fasten earthing press of ground cable carefully, preferably direct to welding piece. Contact surface of press always should be as large as possible.

Clean the fastening surface from paint and rust!



Use in your MIG equipment 50 mm² cables. Thinner cross-sectional areas might cause overheating of connectors and insulations.

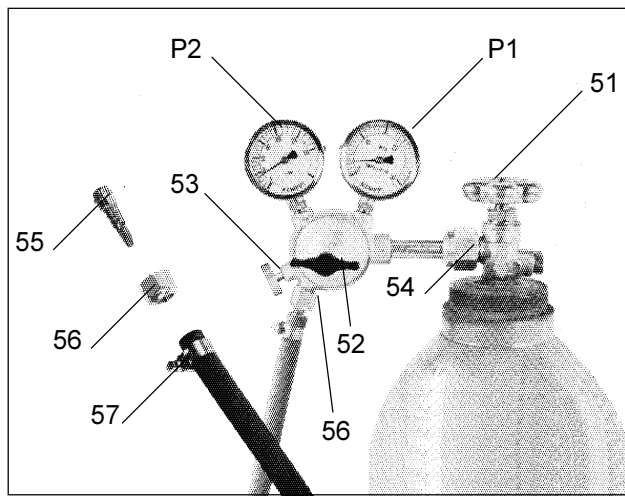
Make sure that the welding gun in your use is designed for max. welding current needed by you!
Never use a damaged welding gun!

Shielding gas

As MIG shielding gas is used carbon dioxide, mixed gases and argon. Shielding gas flow rate is defined by welding current size.

Gas flow regulator

Gas flow regulator should be suitable for shielding gas used by you. The regulator being in your use might be different from the one in picture, however, following general instructions are valid for all pressure regulators.



Before mounting of flow regulator

- Step aside, open cylinder valve (51) somewhat for a moment, in this way you can blow out any dirt that may be in the valve of bottle.
- Screw the pressure regulation screw (52) of regulator outwards so long that no spring pressure can be felt (screw is turning freely).
- Close needle valve (53) if there is one in regulator.

Connect regulator onto valve of bottle

- Tighten connecting nut (54) preferably with a wrench.
- Put hose spindle (55) of regulator with jacket nuts (56) onto gas hose, connection should be ensured with hose clamp (57).
- Connect hose onto regulator and machine, tighten jacket nuts.

Open valve of bottle slowly

- Pressure meter (P1) shows pressure of bottle. Never use up all the gas in the bottle, send the bottle for filling up when the bottle pressure still is 2 bar.
- Open needle valve if there is one in regulator.
- Screw regulation screw (52) inwards until hose pressure meter (P2) shows flow (or pressure) required. By regulation of flow amount the machine has to be in operation and the gun switch should be pressed on at the same time.

Close valve of bottle always after having stopped welding

- If the machine will be unused for a longer time, you should also unscrew pressure regulation screw (52).

Gas bottle



The gas bottle may explode if it falls! Always fasten gas bottle tightly in vertical position, to wall stand or bottle cart, specially designed for it! For safety reasons always remove gas bottle from transport stand of the machine before lifting or car transport of machine!

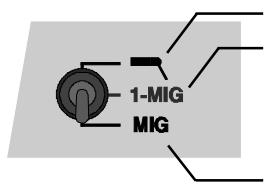
FEED 400 FUNCTIONS

Function panel



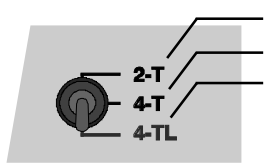
English

Selection of welding process



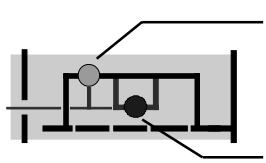
MMA selection, power source is started for open circuit.
 Synergic MIG / MAG welding (1-knob MIG): MIG welding, where wire feed speed defines values of other welding parameters enabling welding's power level adjustment from one control knob. Dependence of welding parameters from wire feed speed is defined by choice of synergic curve for filler wire and gas which are used.
 MIG / MAG welding with independent wire feed and voltage controls.

Selection of MIG process



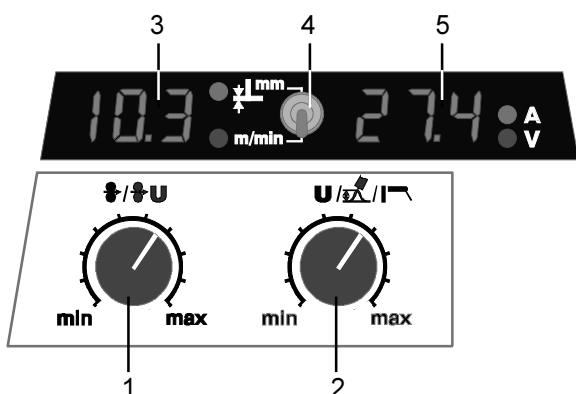
MIG welding with two-sequence start switch procedure, MIG two-sequence
 MIG welding with four-sequence start switch procedure, MIG four-sequence
 MIG welding with Minilog function, MIG 4-TL. In the 4-TL function the operator can move during welding by means of the MIG gun's switch between two different welding powers. The functions are controlled with long (>0.7 s) and short (<0.7 s) pressings on start switch, see paragraph MIG Minilog function. The 4-TL procedure is used only in 1-knob MIG welding.

Signal lamps for Welding / MIG Minilog



LED for welding current. Is continuously illuminated by MIG. Blinking during welding or when the power source is on open circuit (e.g. MMA welding).
 LED for lower Minilog current level. Is illuminated when adjustment values for lower Minilog current level are visible in displays.

Basic adjustments, basic displays



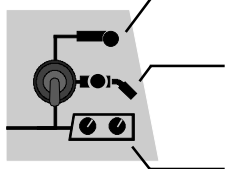
(1) Wire feed speed adjustment by MIG / MAG. Welding power adjustment by synergic 1-knob MIG.
 (2) Welding voltage adjustment by MIG/MAG. Arc length adjustment by synergic 1-knob MIG. MMA current adjustment by MMA welding.
 (3) Wire feed speed in m/min, plate thickness display in mm. Note! you can select the plate thickness display only by synergic 1-knob MIG. With the selecting switch (4) is selected which variable is visible in the display. The plate thickness display is an informative thickness display for welding plates when making horizontal vertical fillet welds.
 (5) Set value display for welding voltage by MIG and 1-knob MIG, V / MMA current set value display, A. This display is also used as display for MIG welding dynamics, -9...0...9.

MIG welding dynamics adjustment



With MIG welding dynamics adjustment is influenced on welding stability and spatter amount. Zero setting is recommended basic setting. Values → min (-1...-9), softer arc for reduced spatter amount. Values → max (1...9), harder arc for increased stability and when 100 % CO₂ shielding gas is used in welding of steel.

Selecting switch of main controls



Remote control, basic controls are made from C 110D remote control unit, which is connected to the FEED 400.

Gun control, wire feed speed or welding current (1-knob MIG) control is made from the RMT10 control unit, which is mounted to the PMT MIG gun. Control of welding voltage or arc length is made from the voltage control potentiometer of the panel.

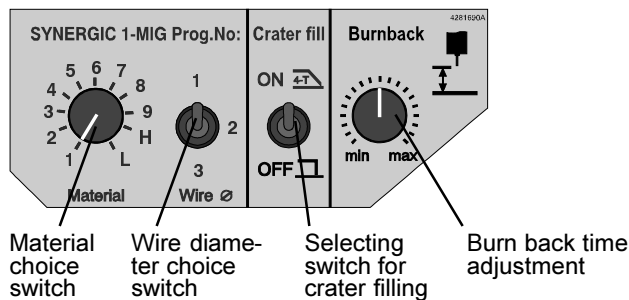
Local control, basic controls are made from potentiometers of the panel.

Display of selected 1-knob MIG synergic program



The display shows number for 1-knob MIG program, which has been selected with selecting switches on the synergy panel. If on display is visible '—', you have not selected any 1-knob MIG program. Then welding is prevented. By normal MIG / MAG welding the display is dark.

1-knob MIG synergy panel



In the reel cabinet there is 1-MIG synergy panel. On the MIG synergy panel there are selecting switches for 1-knob MIG synergic curve, selecting switch for 1-knob MIG crater filling as well as potentiometer for burn back time adjustment.

Burn back time adjustment

The burn back time is adjusted steplessly. The value for burn back time is selected according to material in question so that the filler wire won't stick on the weld piece at the weld end, and also that there won't be produced too big "ball" at the wire tip. The burn back time is changed automatically right according to changes of the wire feed speed.

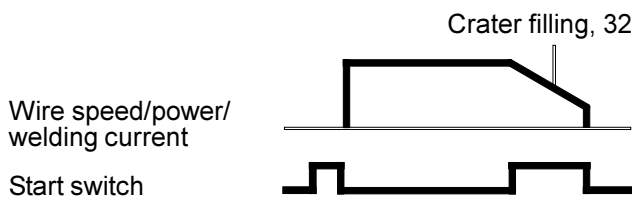
Selection of 1-knob MIG synergic curve

The FEED 400 includes preset programs for synergic 1-knob MIG welding of the most common materials. The preset programs are presented in the enclosed table. On reel cabinet door of the Feed 400 there is a guide sticker, which tells positions of selecting switches and program numbers (see also page 6).

Material choice switch	Wire diameter choice switch	Program number	∅	Wire material	Shielding gas
1	1	11	0.8	Fe	100% CO ₂
1	2	12	1.0	Fe	100% CO ₂
1	3	13	1.2	Fe	100% CO ₂
2	1	21	0.8	Fe	Ar15-25%CO ₂
2	2	22	1.0	Fe	Ar15-25%CO ₂
2	3	23	1.2	Fe	Ar15-25%CO ₂
3	1	—		no program	
3	2	—		no program	
3	3	33	1.2	Metal cored wire	Ar15-25%CO ₂
4	1	—		no program	
4	2	—		no program	
4	3	43	1.2	Rutile flux cored wire	Ar15-25%CO ₂
5	1	51	0.8	Ss316	Ar2%CO ₂ ,O ₂
5	2	52	1.0	Ss316	Ar2%CO ₂ ,O ₂
5	3	53	1.2	Ss316	Ar2%CO ₂ ,O ₂
6	1	—		no program	
6	2	62	1.0	AlMg5, AlMg4,5Mn	100%Ar
6	3	63	1.2	AlMg5, AlMg4,5Mn	100%Ar

Material choice switch	Wire diameter choice switch	Program number	∅	Wire material	Shielding gas
7	1	--		no program	
7	2	72	1.0	AlSi5	100%Ar
7	3	73	1.2	AlSi5	100%Ar
8	1	--		no program	
8	2	--		no program	
8	3	83	1.2	SsFCR	Ar15-25%CO2
9	1	91	0.8	CuSi3	100%Ar
9	2	92	1.0	CuSi3	100%Ar
9	3	--		no program	
H	1	--		no program	
H	2	H2	1.0	Ss309	Ar2%CO2,O2
H	3	H3	1.2	Ss309	Ar2%CO2,O2
L	1	--		no program	
L	2	--		no program	
L	3	--		no program	

Crater filling (1-knob MIG, 4-T and 4-TL)



Crater filling is used to reduce weld defects caused by end crater. At the weld end you get, during gun's start switch pressing, a steplessly decreasing welding power, which fills end crater in a controlled way.

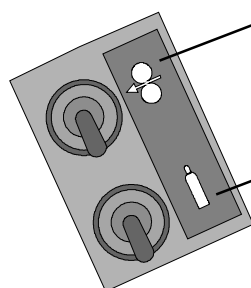
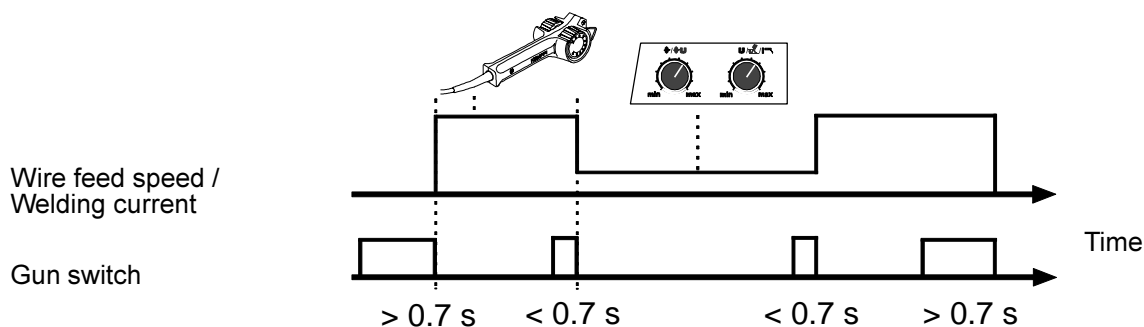
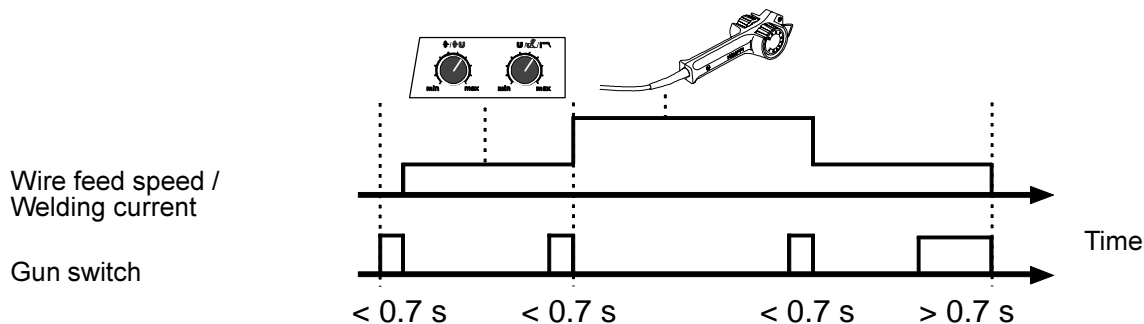
MIG Minilog (1-knob MIG 4-TL) function

In the MIG minilog (4-TL) function remote (C 110D) or gun control (RMT 10) unit is connected to the FEED wire feeder. Then two sets of welding parameters are adjusted. One set of welding parameters is adjusted from remote/gun control unit and another set of welding parameters is adjusted from local controls of the panel. These two levels of welding parameters can now be selected from the trigger of welding gun by pressing it long or short time (see pictures below).

This function can be benefitted e.g. for avoiding welding faults at start by starting either with higher values than normal welding values (hot start) or with lower values. Quick change possibility of welding values improves weld pool control by varying air gaps and in position welding. At the weld end you can use lower welding values for end crater filling.

MIG Minilog use:

1. Select 1-knob MIG and 4-TL functions with panel switches and from the synergy panel a program for filler wire / gas you are using.
2. Set selecting switch of main controls to remote control, when you are using C 110D or to gun control, when you are using RMT10.
3. Adjust the desired welding values from the remote or gun control unit, the values are visible in displays and the welding current LED is illuminated.
4. Adjust from panel potentiometers lower values than the welding values of above mentioned remote or gun control units. When panel adjustments are made, the MINILOG current level LED lights up and the displays start showing panel potentiometer values. When adjustments are stopped, the displays revert after a moment to show remote control unit's welding values and at the same time the welding current LED lights up.
5. By starting according to enclosed picture with short (< 0.7 s) pressing of gun's start switch, the welding starts with values adjusted to local controls and goes over with following < 0.7 s pressing to higher welding values, which have been adjusted to the remote control unit.
6. By starting with long (> 0.7 s) pressing of gun's start switch, the welding starts with values adjusted to remote control unit and goes over with following short < 0.7 s pressing to lower welding values, which have been adjusted to local controls.
7. During welding with short < 0.7 s pressings of start switch, the operator is moving between these two current levels according to needs.
8. The welding is always stopped with long pressing of more than 0.7 s.
9. If necessary you can use crater filling function at the weld end.



Wire inch switch

The wire inch switch starts the wire feed motor without starting the power source and without opening the gas valve.

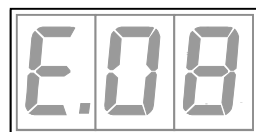
Gas purge switch

The gas purge switch opens the gas valve without starting the wire feed motor and the power source.

FEED 400 error codes

By every start there is checking of possible error states in equipment. If an error state is found, the error in question is shown with Err text appearing in the panel display.

Here are some of the error codes:



Err 2: The operator is pressing on gun switch, when MMA welding has been selected from the FEED control panel.

Err 8: Liquid-cooled PMT gun is overheated.

Err 9: Overloading of wire feed motor, which can be e.g. due to blocked wire guide tube of gun, or due to too sharply bent gun cable.

Err 12: The welding is prevented, because the shielding gas control of the gas guard GG 400 has released.

The error codes disappear by following start, when reason of the error code is eliminated.

ACCESSORIES

SYNC 400 synchronizing unit

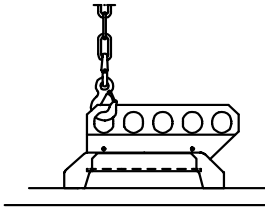
By means of Sync 400 you can connect the push-pull gun to the FEED wire feeder. The push-pull gun is most commonly used for feeding of aluminium wires. The push-pull gun enables extending the working radius up to 10 m. The Sync 400 is mounted into electronics case of the FEED. Mounting of the Sync 400 is described in the mounting instructions which are delivered with the unit.

GG 400 gas guard

With gas guard accessory can be avoided weld defects due to lacking or wrong flow of shielding gas. Functions of gas guard are as follows:

- Prevention of welding, if the gas pressure is not sufficient by the wire feeder unit.
- Stopping of welding, if shielding gas pressure disappears during welding.
- When gas guard has prevented welding, error message E.12 appears on welding panel displays.
- Shielding gas flow meter / regulator. Regulation range 5-25 l/min. The display is calibrated for shielding gas Ar CO₂ (75 % Ar, 25 % CO₂)

Hanging onto boom



The lift hook is mounted to handle of the FEED. The wire feeder unit's position depends on the lift hook hole position.

OPERATION DISTURBANCES


The amount of use and the working environment should be taken into consideration when planning the frequency of maintenance of the FEED 400. Careful use and preventive maintenance will help to ensure trouble-free operation.

The following maintenance operations should be carried out at least every six months:

Check:

- The wear of the grooves of the feed rolls. Excessive wear of grooves causes problems in wire feed.
- The wear of the wire guide tubes of the wire feeder unit. Badly worn feed rolls and wire guide tubes should be discarded.
- The wire guide tube in the gun should be set as near the feed rolls as possible, but not touching them and the wire must follow a straight line from the end of the tube to the groove of the feed roll.
- Reel brake adjustment.
- Electric connections
 - * oxidized couplings must be cleaned
 - * loose couplings must be tightened

Clean dust and dirt from the equipment.

 When using compressed air, always protect your eyes with proper eye protection.

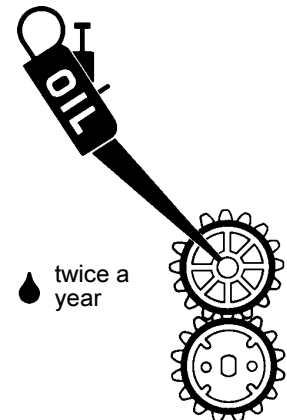
In case of problems contact your KEMPPI dealer.

REGULAR MAINTENANCE OF EQUIPMENT

Kemppi service repair shops make regular maintenance according to agreement.

The major points in the maintenance procedure are as follows:

- Cleaning of the equipment
- Checking and maintenance of the welding tools
- Checking of connectors, switches and potentiometers
- Checking of electric connections
- Metering units checking
- Checking of mains cable and plug
- Damaged parts or parts in bad connection are replaced by new ones
- Maintenance testing. Operation and performance values of the equipment are checked, and adjusted when necessary by means of test equipment.



Notes:

A series of horizontal dotted lines for writing notes, spanning the width of the page.