

End-to-end welding

Flat belts up to 50mm wide



MC50 Welding iron

Electronic regulation
Thermostat rating 150 W

J50 Welding clamp

for flat belts \leq 50mm
and round belts



Flat and conveyor belts up to 120mm wide



MC100 Welding iron

Electronic regulation
Thermostat rating 220 W

J100 B Welding clamp

for flat belts \leq 120mm and
flat belts with
10 x 6mm and 13 x 8mm
V guides



Flat and conveyor belts up to 210mm wide



MC200 Welding iron

Electronic regulation
Thermostat rating 300 W

J200 B Welding clamp

for flat belts \leq 120mm and
flat belts with
13 x 8mm or 17 x 11mm
V guides



Conveyor belts



Welding rod

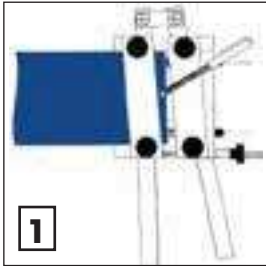


Welding table

Easy to handle, easy and quick to joint in the workshop and on site.

REFERENCE	MAX. WIDTH (mm)	WATTAGE (WATT)	VOLTAGE (V)
KITSOUDURED400	400	615	220
KITSOUDURED650	650	900	220
KITSOUDURED1100	1100	1450	220

welding process for flat and conveyor belts

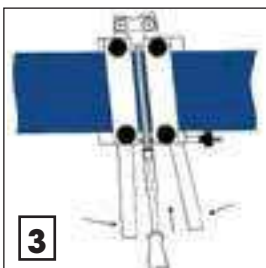
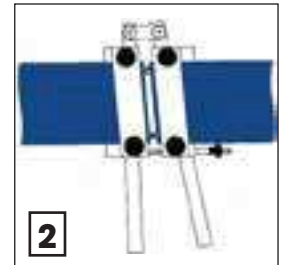


Connect the welding iron to a suitable power source (**MC50 to MC200**).

As the welding iron is equipped with a thermostat, you should plug the iron in at least 8 minutes before attempting the welding process.

With a suitable pen, draw and cut the belt ends following the angle of the clamp bars (**J50 to J200B** depending on the belt's width).

Insert the ends of the belt into the clamp, allowing a 5 mm to protrude beyond the inside of the clamp bars (If the belt to weld is a DEL/ROC, strongly tighten the top screws of the clamp).



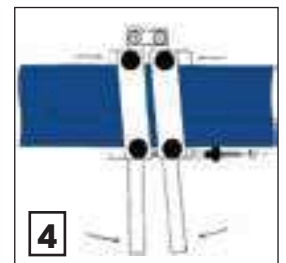
With the clamp still open, insert the blade in between both ends of the belt ensuring the length of the blade can cover the surfaces to be welded.

Apply gentle pressure to the handles of the clamp allowing the belt ends to touch and melt against the heating blade.

During the process, you will observe a growing bead of melted plastic against each side of the blade.

Once an adequate amount of melted plastic can be seen against the blade, quickly release the pressure on the handles and slightly open the clamp allowing the blade of the iron to be removed.

Once the welding blade is clear, quickly re-close the clamp and tighten the side screw to hold the clamp in a closed position whilst the melted plastic cools. Tighten the screw to suit the cross section of the belt (the bigger the belt, the tighter the clamp should be tightened).



Keep the clamp closed using the side screw until the weld has cooled sufficiently.

Failure to do this may result in a weakened joint.
(The process should take between 2 and 5 minutes, depending on the size of the belt).

NB: DEL/ROC belts cool a lot quicker than the other MAFDEL types.

If you are welding a DEL/ROC belt, the process will have to be completed more swiftly.



Trim the excess bead from the joint top and bottom so the surface is completely smooth. Check the alignment of the finished joint making sure the joint is not 'dog-legged'. Also check the joint for voids and air bubbles.

A further check can be done by flexing the joint to make sure that it won't open up in operation. Fit the belt on the machine.

NB: Cleanliness is vital for a perfect result. Make sure that the blade of the iron is perfectly clean with no burnt plastic from previous use. Both ends of the belt should also be perfectly clean.

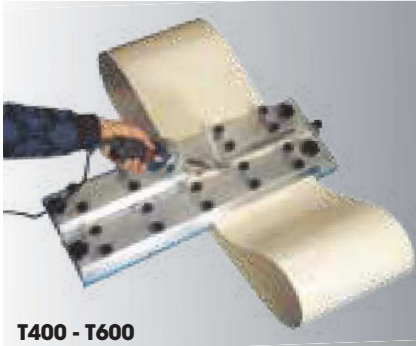
CLEAN THE BLADE OF THE WELDING IRON IMMEDIATELY AFTER USE WHILST IT'S STILL HOT



Wipe the blade with a clean 100% cotton cloth.

Do not use any cloth that may contain synthetic materials, which would melt upon contact with the blade of the welding iron. Failing to observe this will result in a weakened joint through contamination.

hot air welding



T400 - T600

- Butt-welding with a triangular welding profile inserted and melted between the belt ends, previously cut with a 45° chamfer.

Required tools:

- **1/4 moon knife** for the ends chamfer and the welding point cleaning.
- **T400** or **T600 welding table** to secure the belt while being both chamfered and welded.
- **TR600 Hot air gun** with a **BR5** or **BR7 nozzle** for feeding the triangular welding profile into the chamfer.



This process can also be used to repair torn belts on site or to weld profiles onto our belts.

welding with a heat press

Process similar to the one for regular plied conveyor belts.

- **DEL/FLEX** and **SOUPLEX**: Cut at 90° and overlap belt ends by about 5mm.
- **DEL/FLEX** belts with a reinforcement ply: It is recommended that a finger or 'Z' joint is used.

The use of a plied belt heat press is **NOT** compatible with DEL/ROC flat and conveyor belts.



mechanical fasteners



STAINLESS STEEL CLIPS

- Joining with mechanical fasteners with a stainless pin.
- Belt thickness: from 1.5mm to 5mm.
- No width limit.
- Insertion with hammer, no rivets should be used.
- Compatible with all Mafdel flat or conveyor belts such as **DEL/ROC**, **DEL/FLEX** and **SOUPLEX**.

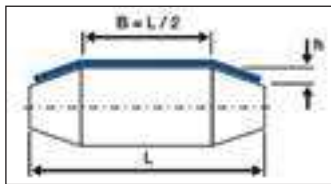


PLASTIC CLIPS

- Suitable for all homogeneous (polyurethan or polyester) belts.
- Particularly suitable in metal detecting applications.
- Up to 1100 mm wide.
- Recommended for pulley diameter higher than 120 mm.

conveyor belts driving

To ensure perfect belt tracking, Mafdel recommend the use of radiussed or crowned drums.



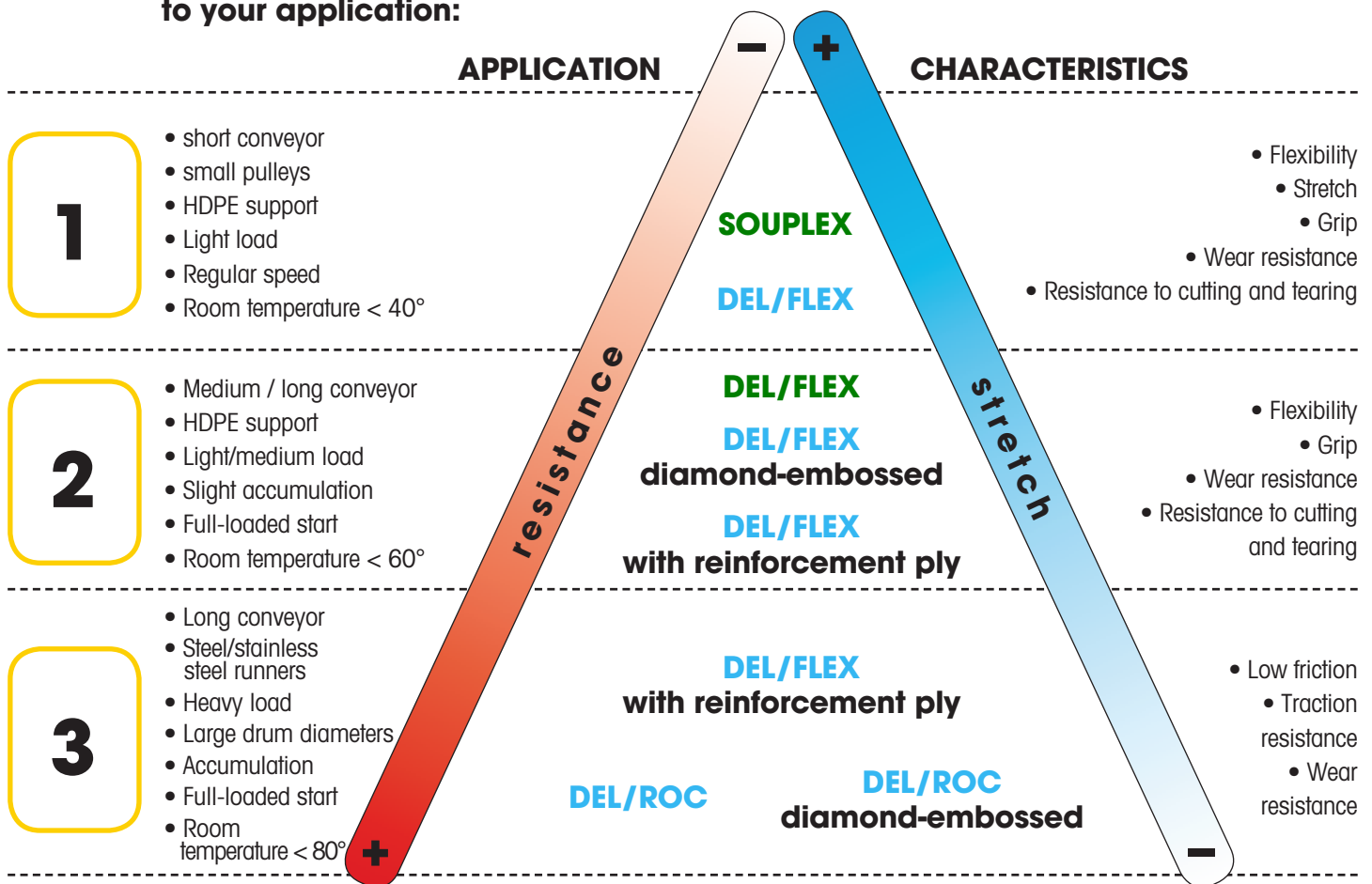
L	h
up to 200mm	0.25 to 0.5mm
200mm to 500mm	0.5 to 1mm
500mm to 1000mm	1 to 1.5mm

choosing a conveyor belt

To select the correct belt, you need to establish the characteristics and working conditions of the conveyor, and the nature of the product:

CONVEYOR	PRODUCT TRANSPORTED	WORKING CONDITIONS
length of the conveyor	maximum transported weight	continuous or stop-and-go driving
diameter of the pulleys	nature of the product	accumulation
Type of support	spreading of the load along the conveyor	other efforts, pressure, etc...
length of the tensioning system	temperature of the product	room temperature

Choose from the 3 following categories, which one best matches to your application:



conveyor belts

Into the selected category, choose the type of belt whose general characteristics, such as **resistance, hardness, friction coefficient, stretch, operating temperature...** are the closest to the ones you are looking for.

Examples :

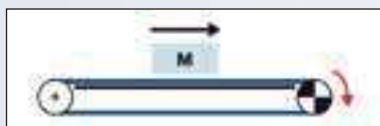
- In case of accumulation of the products transported on the belt, choose the type with the lowest friction coefficient.
- To convey heavy loads, choose the strongest and least elastic quality.



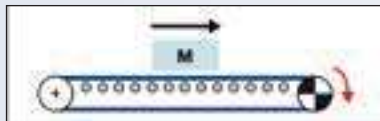
conveying / simplified calculations

SYMBOLE	MEASURES	DESIGNATION	BELT CHARACTERISTICS (In catalog)
M	Kg	Transported load	
Mmax	Kg	Maximum load limit per belt	
F	daN	Minimum traction force for the continuous driving of the load M	
F'	daN	Minimum traction force for full-loaded starts with the load M	
Ft	daN	Traction force of the chosen belt	X
t	%	Stretch corresponding to the traction force of the belt Ft	X
Cf		Friction coefficient of the belt on its runner	X
Cr		Rolling coefficient of the belt on its support (0.05 to 0.1 according to the conditions: smooth support, bearings,...)	
Cfp		Friction coefficient of the transported product on the belt	
Cs		Safety factor	

type of conveyor



CONVEYOR WITH SUPPORT BED



CONVEYOR WITH SUPPORT ROLLERS



CONVEYOR WITH ACCUMULATION

For conveyors that operate, **STOP/START OPERATION** (full-loaded starts):

simplified calculation of the required traction force to carry the specific load

$$F = M \times Cf$$

$$F = M \times Cr$$

In case of accumulation, take into account the friction coefficient of product to convey on the belt. Add this value to the friction coefficient of the belt on its support:

$$F = M \times (Cf + Cfp)$$

The traction force **F** determined above must be multiplied by 2.

$$F' = F \times 2$$

simplified calculation of the maximum load limit per belt

$$M_{max} = Ft / Cf$$

$$M_{max} = Ft / Cr$$

$$M_{max} = Ft / (Cf + Cfp)$$

As you calculate **Mmax**, only take into account half the traction force of the selected belt.

$$Ft/2$$

example

Conveying a load of 100kg on a 300mm wide conveyor belt.
Wet conditions - belt cleaned frequently.

Stainless steel bed.
Conveyor drum centres: 10meters.
Drum diameter: 150mm.
Stop/Start operation.

choice of a belt category (page 31)

Long drum centres
Medium load
Full-load start
Stainless steel bed

CATEGORY 3

DEL/FLEX with reinforcement ply
DEL/ROC smooth
DEL/ROC diamond-embossed

Calculation of the maximum load limit on the selected belts

	DEL/FLEX with reinforcement ply 3 mm thick	DEL/ROC 2 mm thick	DEL/ROC 3 mm thick
Friction coef. on stainless steel	Cf	0.35	0.5
Traction force of the belt at 1% tension	Ft (daN)	7 daN / cm width 210	18 daN / cm ² section 108 18 daN / cm ² section 162
Maximum load limit on the belt with full load start	Mmax (Kg) = (Ft/2) / Cf	300	108 162
Safety factor	Cs = Mmax / M	3	1.1 1,6

The drum diameters of the belts previously selected being compatible with the application, 2 solutions can be considered, with a reasonable safety coefficient:

- **BT DEL/FLEX** with a reinforcement ply 300 x 3mm
- **BT DEL/ROC** 300 x 3mm

We would recommend the selection of a **DEL/ROC** type with diamond-embossed bottom surface:

- Better sliding on stainless steel plate than smooth **DEL/ROC** in wet conditions.
- Better resistance to cleaning than a **DEL/FLEX** with reinforcement ply.

solutions