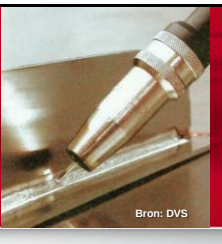


Inbranding

van gevulde draad

Workshop MIG/MAG

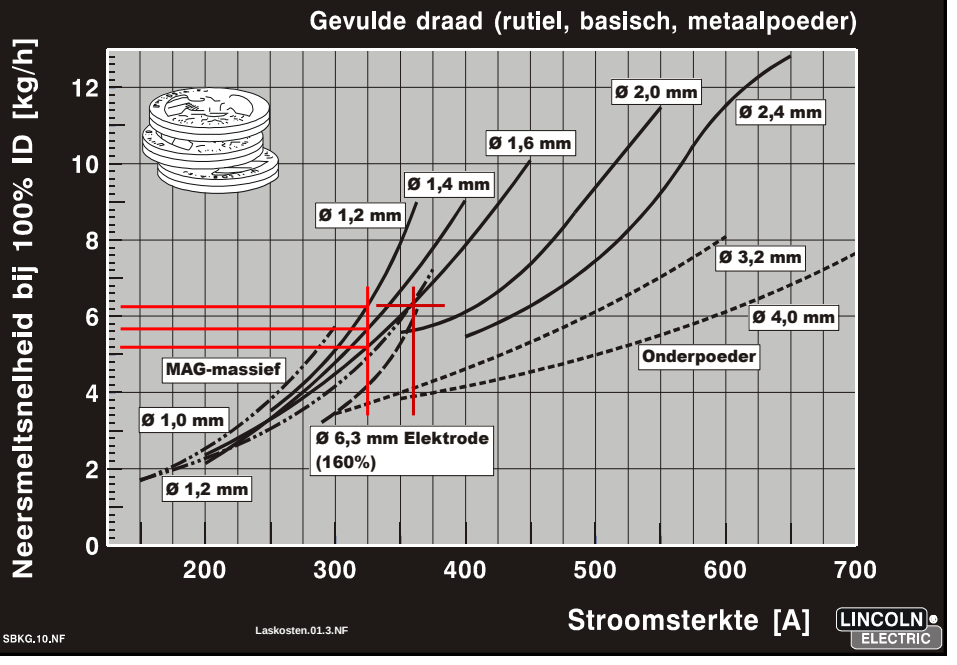
Fred Neessen
Voorheen Lincoln Smitweld B.V.

Lasgroep Zuid, 26 Sept. en 31 Okt. 2023

Inhoud

- Iets over de:
  - Neersmeltsnelheid
- Invloeden op de inbranding van:
  - Stick-out
  - Stroomsterkte
  - Boogspanning
  - Voortloopsnelheid

Neersmeltsnelheid als functle van lasproces en stroomsterkte.



SBKG.10.NF

Laskosten.01.3.NF

LINCOLN ELECTRIC

Neersmeltsnelheid

		Stroom-sterkte [A]	Boog-spanning [V]	Neer-smelt-snelheid [g/min]
		350	32	88
		290	32,5	88
		260	33	88

Practical Hints.NF.23.4

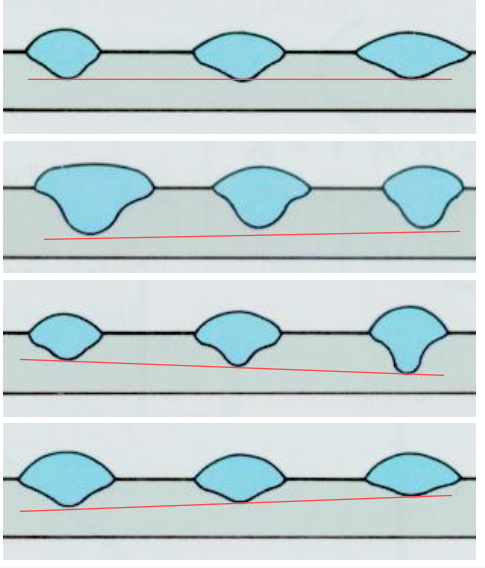
Neersmeltsnelheid

	Stick-out [mm]	Stroom-sterkte [A]	Boog-spanning [V]	Neer-smelt-snelheid [g/min]
	10	350	32	88
	20	290	32,5	88
	30	260	33	88

Neersmeltsnelheid

WFS [inch/min]	Stick-out [mm]	Stroom-sterkte [A]	Boog-spanning [V]	Neer-smelt-snelheid [g/min]
400 (10,6 m)	10	350	32	88
	20	290	32,5	88
	30	260	33	88

Invloed van toenemende …..: op badbreedte en inbranding



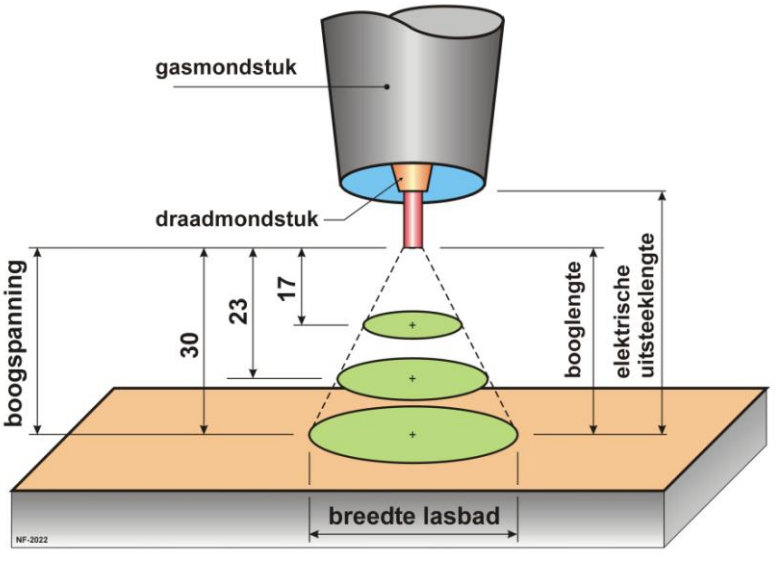
boogspanning

lassnelheid

lasstroom

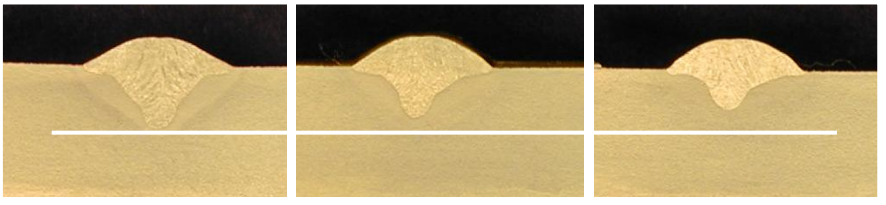
uitsteeklengte

Breedte lasbad is functie van de booglengte



Invloed stick-out lengte

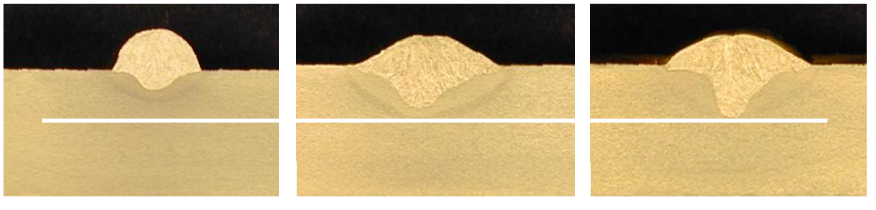
Gemechaniseerd lassen met: WFS = 400"



10 mm 350 A	20 mm 290 A	30 mm 260 A

Invloed boogspanning

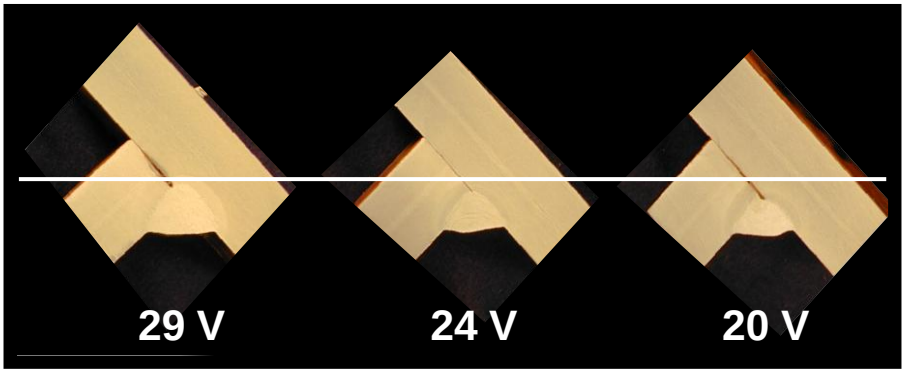
Gemechaniseerd lassen: WFS = 400" - 290 A en 20 mm stick out



22 V	32 V	37 V

ISO 17632-A: T 46 3 P M 1 H5, ø 1.2mm
Invloed boogspanning

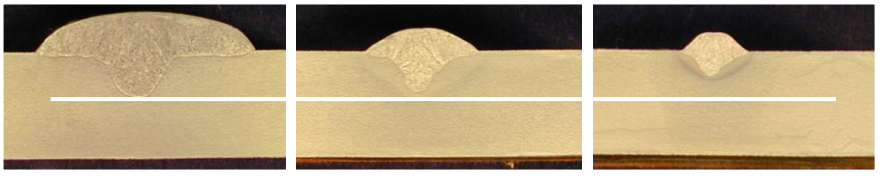
Handmatig lassen in 3Fup / PF met 220 A



Invloed voortloopsnelheid

Gemechaniseerd lassen:

WFS = 400" - 290 A en 20 mm stick-out

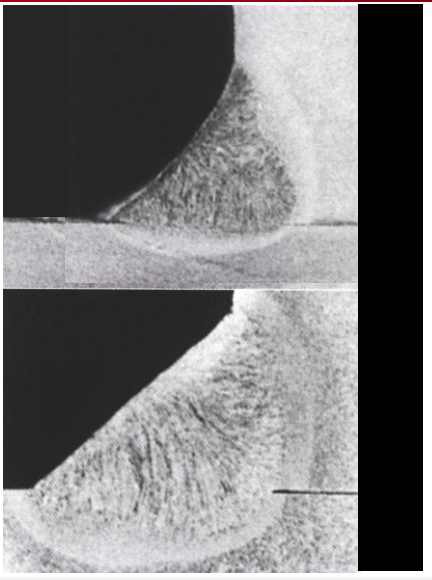


14 cm/min **45 cm/min** **100 cm/min**

Hoeklassen, massief of gevulde draad

massieve draad

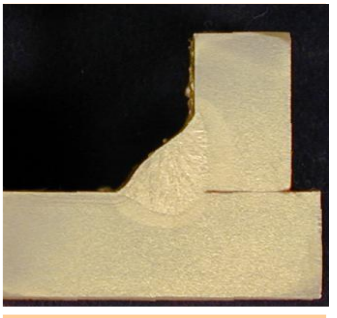
gevulde draad



Optimale lasparameters

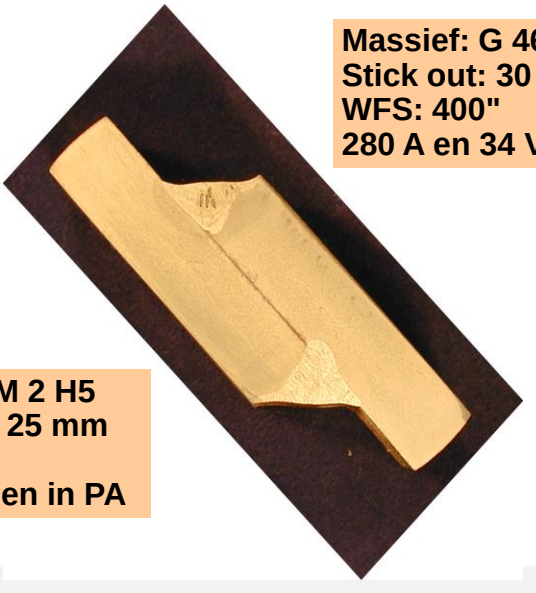
Hoeklassen met MC en massieve draad, ø 1.2mm
Beschermgas: 80Ar + 20% CO_2, 20 L/min

17632-A: T 46 3 M M 2 H5
Stick out: 20 - 25 mm
WFS: 400" (10.9 m/min)
330 A en 33 V



ISO14341-A: G 46 5 M 4Si1
Stick out: 20 - 25 mm
WFS: 300" (7.6 m/min)
280 A en 31 V

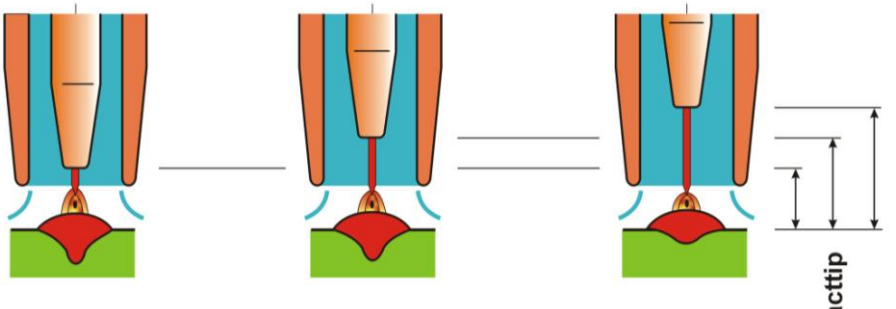
Gemechaniseerd lassen, ø 1.2mm
Voortloopsnelheid: 32 cm/min



Massief: G 46 5 M 4Si1
Stick out: 30 - 35 mm
WFS: 400"
280 A en 34 V en in PA

MC: T 46 3 M M 2 H5
Stick out: 20 - 25 mm
WFS: 400"
340 A en 34 V en in PA

Invloed stick-out op smeltbad doorsnede



hoger ←	stroomsterkte	→ lager
lager ←	boogspanning	→ hoger
groter ←	inbranding	→ kleiner
minder ←	spatten	→ meer
hoger ←	thermische belasting contactbuis	→ lager

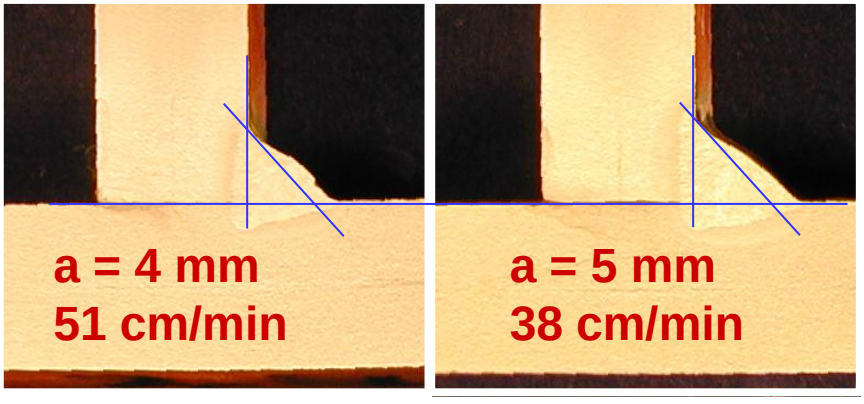
Afstand contacttip

NF-2023

ISO 17632-A: T 46 3 P M 1 H5, ø 1.2mm
Gemechaniseerd lassen

Plaatdikte: 12 mm

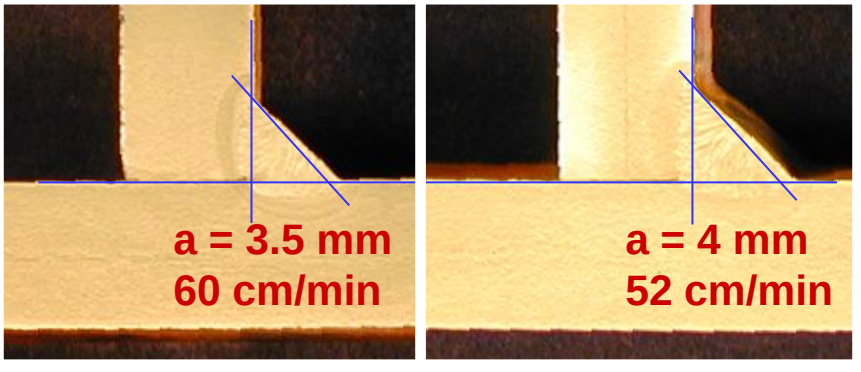
280 A met 30 Volt



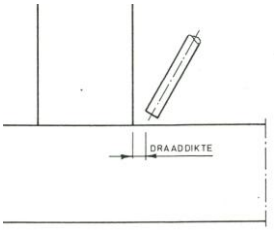
ISO 17632-A: T 46 3 P M 1 H5, ø 1.2mm
Gemechaniseerd lassen

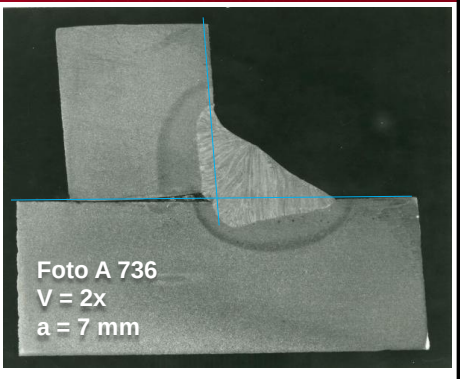
Plaatdikte: 12 mm

280 A met 30 Volt



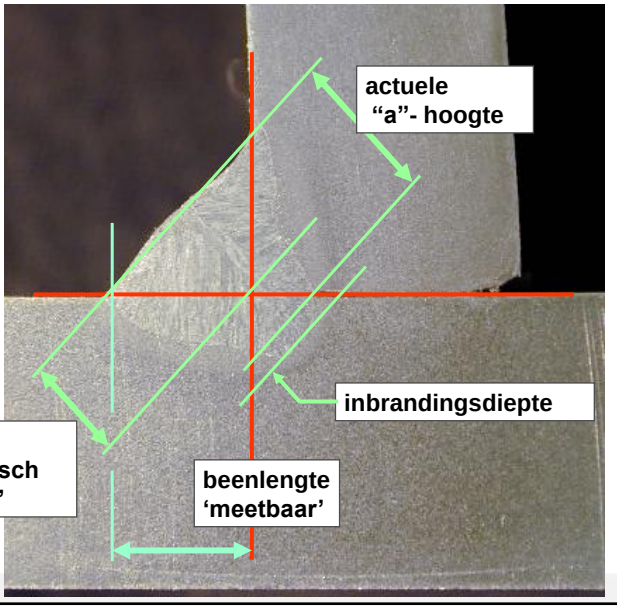
Staande hoeklas a = 7 mm, gemechaniseerd lassen



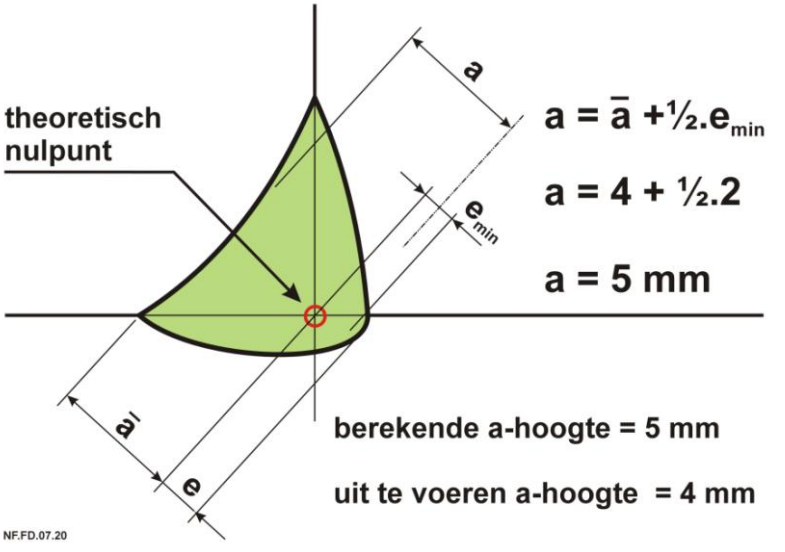


- **Conventionele rutiel gevulde draad, ø 2,0mm, menggas 80/20**
- **Lasparameters: 400 A – 30 V – 26 cm/min**

Bepaling van hoeklas hoogte



Maak gebruik van de inbranding bij hoeklassen



$a = \bar{a} + ½.e_{min}$

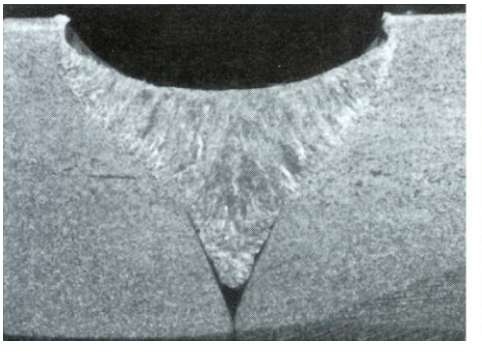
$a = 4 + ½.2$

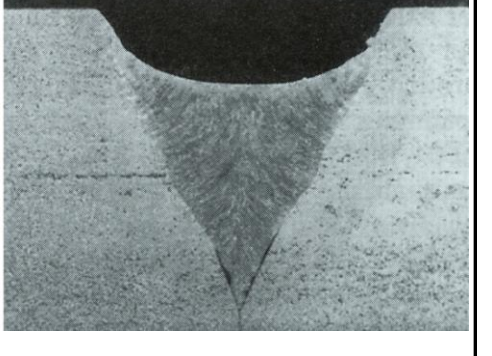
$a = 5$ mm

berekende a-hoogte = 5 mm

uit te voeren a-hoogte = 4 mm

Bindingsfouten





Bedankt voor uw aandacht