

## TIG welding

Shielding gases for TIG welding		
Product	Components	Applications
Welding Argon	100 % Argon	High and low alloyed steels aluminum + non ferrous metals
Inoxline H2	98,0 Argon, 2,0 % H <sub>2</sub>	Stainless Steels (high alloyed) preferably mechanised
Inoxline H5	95,0 Argon, 5,0 % H <sub>2</sub>	
Inoxline H7	92,5 Argon, 7,5 % H <sub>2</sub>	
Helium	100 % Helium	(DC-)welding of aluminum (mechanised)
Argon-Helium	10 % Argon, 90 % Helium	(AC-)welding of aluminum + generally copper and nickel alloys
Aluline He30	70 % Argon, 30 % Helium	
Aluline He50	50 % Argon, 50 % Helium	
Aluline He70	30 % Argon, 70 % Helium	
Welding Argon special	100 % Argon 4.8	Gas sensitive materials like titanium, niobium, tantalum
Inoxline N1	1,25 % N <sub>2</sub> , balance Argon	Duplex, Superduplex
Inoxline N2	2,50 % N <sub>2</sub> , balance Argon	
Inoxline He15 N1	1,25 % N <sub>2</sub> , 15 % He, balance Argon	
Inoxline He15 H2 N	15 % He, 2 % H <sub>2</sub> , 0,015 % N <sub>2</sub> , balance Argon	Nickel-Base alloys

## Root shielding

Gases for root shielding		
Product	Components	Applications
Argon	100% Argon	Steels as: austenitic + ferritic, Duplex, Superduplex, fine grain structural non ferritic metals, CU-Ni
Forming gas H	95 - 80 % N <sub>2</sub> , 5 - 20 % H <sub>2</sub>	Stainless steels
Inoxline H2	98 % Argon, 2 % H <sub>2</sub>	Stainless steels, Nickel and Ni-base alloys
Inoxline H5	95 % Argon, 5 % H <sub>2</sub>	Stainless steels, Nickel and Ni-base alloys

## DIN EN ISO 14175

Shielding gases for welding applications								
Abbreviation	Group	Ident- No.	Components in %, -Vol.					
			oxidizing CO <sub>2</sub>	O <sub>2</sub>	inert Ar	He	reducing H <sub>2</sub>	less-active N <sub>2</sub>
I		1			100			
		2				100		
		3			balance	0,5 ≤ He ≤ 95		
M1		1	0,5 ≤ CO <sub>2</sub> ≤ 5		balance <sup>a)</sup>		0,5 ≤ H <sub>2</sub> ≤ 5	
		2	0,5 ≤ CO <sub>2</sub> ≤ 5		balance <sup>a)</sup>			
		3		0,5 ≤ O <sub>2</sub> ≤ 3	balance <sup>a)</sup>			
		4	0,5 ≤ CO <sub>2</sub> ≤ 5	0,5 ≤ O <sub>2</sub> ≤ 3	balance <sup>a)</sup>			
M2		0	5 < CO <sub>2</sub> ≤ 15		balance <sup>a)</sup>			
		1	15 < CO <sub>2</sub> ≤ 25		balance <sup>a)</sup>			
		2		3 < O <sub>2</sub> ≤ 10	balance <sup>a)</sup>			
		3	0,5 ≤ CO <sub>2</sub> ≤ 5	3 < O <sub>2</sub> ≤ 10	balance <sup>a)</sup>			
		4	5 < CO <sub>2</sub> ≤ 15	0,5 ≤ O <sub>2</sub> ≤ 3	balance <sup>a)</sup>			
		5	5 < CO <sub>2</sub> ≤ 15	3 < O <sub>2</sub> ≤ 10	balance <sup>a)</sup>			
M3		1	15 < CO <sub>2</sub> ≤ 25	3 < O <sub>2</sub> ≤ 10	balance <sup>a)</sup>			
		2	25 < CO <sub>2</sub> ≤ 50		balance <sup>a)</sup>			
		3	25 < CO <sub>2</sub> ≤ 50	10 < O <sub>2</sub> ≤ 15	balance <sup>a)</sup>			
		4	5 < CO <sub>2</sub> ≤ 25	10 < O <sub>2</sub> ≤ 15	balance <sup>a)</sup>			
		5	25 < CO <sub>2</sub> ≤ 50	10 < O <sub>2</sub> ≤ 15	balance <sup>a)</sup>			
C		1	100					
		2	balance	0,5 ≤ O <sub>2</sub> ≤ 30				
R		1			balance <sup>a)</sup>		0,5 ≤ H <sub>2</sub> ≤ 15	
		2			balance <sup>a)</sup>		15 ≤ H <sub>2</sub> ≤ 50	
N		1						100
		2			balance <sup>a)</sup>			0,5 ≤ N <sub>2</sub> ≤ 5
		3			balance <sup>a)</sup>			5 < N <sub>2</sub> ≤ 50
		4			balance <sup>a)</sup>		0,5 ≤ H <sub>2</sub> ≤ 10	0,5 ≤ N <sub>2</sub> ≤ 5
		5					0,5 ≤ H <sub>2</sub> ≤ 50	balance
O		1		100				
Z			Mixed gases with components not included in the table or mixed gases with a composition outside of the given areas. <sup>b)</sup>					

<sup>a)</sup> For this classification, argon may be replaced in whole or in part by helium.

<sup>b)</sup> Two mixed gases with the same Z classification may not replace each other.

## MAG welding

Shielding gases for MAG welding of mild steel						
Product	Group ISO 14175	Composite in % - Vol.				Applications
		Ar	CO <sub>2</sub>	O <sub>2</sub>	He	
Ferroline C8	M 20	92	8	-	-	mild steel
Ferroline C18	M 21	82	18	-	-	mild steel
Ferroline C25	M 21	75	25	-	-	mild steel
Ferroline X4	M 22	96	-	4	-	low/restr. high alloyed steels
Ferroline X8	M 22	92	-	8	-	low/restr. high alloyed steels
Ferroline C6 X1	M 24	93	6	1	-	mild steel
Ferroline C12 X2	M 24	86	12	2	-	mild steel
Ferroline C5 X5	M 23	90	5	5	-	low/restr. high alloyed steels
Ferroline He20 C8	M 20	72	8	-	20	mild steel
Carbon dioxide	C 1	-	100	-	-	mild steel

Shielding gases for MAG welding of stainless steels							
Product	Group ISO 14175	Composition % - Vol.					Applications
		Ar	CO <sub>2</sub>	O <sub>2</sub>	He	H <sub>2</sub>	
Inoxline X2	M 13	98	-	2	-	-	high-alloyed steels
Inoxline C2	M 12	97,5	2,5	-	-	-	high-alloyed steels
Inoxline C3 X1	M 14	96	3	1	-	-	low/restr. high alloyed steels
Inoxline He30 H2 C	Z	67,88	0,12	-	30	2	Ni-alloys
Inoxline He15 C2	M 12	83	2	-	15	-	high-alloyed steels

## MIG welding

Shielding Gases for MIG welding		
Product	Components	Applications
Welding Argon	100 % Argon	aluminum, non ferrous metals
Inoxline He15 H2 N	15 % He, 2 % H <sub>2</sub> , 0,015 % N <sub>2</sub> , balance Argon	Ni-base-alloys
Helium	100 % Helium	Copper
Aluline He15	85 % Argon, 15 % Helium	Copper, aluminum, nickel + CuNiFe-alloys
Aluline He30	70 % Argon, 30 % Helium	
Aluline He50	50 % Argon, 50 % Helium	
Aluline He70	30 % Argon, 70 % Helium	
Aluline N	0,015 % N <sub>2</sub> , balance Argon	aluminum-alloys
Aluline He15 N	15 % He, 0,015 % N <sub>2</sub> , balance Argon	
Aluline He30 N	30 % He, 0,015 % N <sub>2</sub> , balance Argon	
Aluline He50 N	50 % He, 0,015 % N <sub>2</sub> , balance Argon	