

Gases for welding & cutting



TIG welding

| Product | Group ISO 14175 | Composite in % - Vol. | | | | Applications |
|-----------------------|-----------------|-----------------------|-----|----------------|----------------|---|
| | | Ar | He | H ₂ | N ₂ | |
| Welding Argon | I1 | 100 | | | | High and low alloyed steels aluminum + nonferrous metals |
| Inoxline H2 | R1 | 98,0 | | 2,0 | | Stainless steels (high alloyed) |
| Inoxline H5 | R1 | 95,0 | | 5,0 | | |
| Inoxline H7 | R1 | 92,5 | | 7,5 | | |
| Inoxline He3 H1 | R1 | 95,5 | 3 | 1,5 | | Stainless steels (high alloyed) |
| Helium | I2 | | 100 | | | (DC-)welding of aluminum |
| Argon-Helium | I3 | 10 | 90 | | | |
| Aluline He15 | I3 | 85 | 15 | | | (AC-)welding of aluminum + generally copper and nickel alloys |
| Aluline He30 | | 70 | 30 | | | |
| Aluline He50 | | 50 | 50 | | | |
| Aluline He70 | | 30 | 70 | | | |
| Aluline N | Z | 99,985 | | | 0,015 | Aluminum-alloys |
| Aluline He15 N | | 84,985 | 15 | | 0,015 | |
| Aluline He30 N | | 69,985 | 30 | | 0,015 | |
| Aluline He50 N | | 49,985 | 50 | | 0,015 | |
| Welding Argon special | | I1 | 100 | | | |
| Inoxline N1 | N2 | 98,75 | | | 1,25 | Duplex, super duplex |
| Inoxline N2 | | 97,50 | | | 2,50 | |
| Inoxline He15 N1 | | 83,75 | 15 | | 1,25 | |
| Inoxline He15 H2 N | Z | 82,985 | 15 | 2 | 0,015 | Nickel-base alloys |

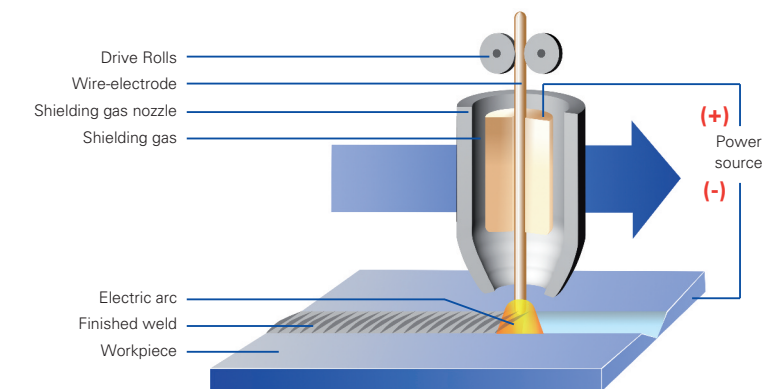
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| Abbreviation Group | Ident-No. | Components in % - Vol. | | | | | |
|--------------------|-----------|--|---------------------------|-----------------------|---------------|---------------------------|--------------------------|
| | | Oxidizing | | Inert | | Reducing | Less-active |
| | | CO ₂ | O ₂ | Ar | He | H ₂ | N ₂ |
| I | 1 | | | 100 | | | |
| | 2 | | | | 100 | | |
| | 3 | | | Balance | 0,5 ≤ He ≤ 95 | | |
| M1 | 1 | 0,5 ≤ CO ₂ ≤ 5 | | Balance ^{a)} | | 0,5 ≤ H ₂ ≤ 5 | |
| | 2 | 0,5 ≤ CO ₂ ≤ 5 | | Balance ^{a)} | | | |
| | 3 | | 0,5 ≤ O ₂ ≤ 3 | Balance ^{a)} | | | |
| M2 | 4 | 0,5 ≤ CO ₂ ≤ 5 | 0,5 ≤ O ₂ ≤ 3 | Balance ^{a)} | | | |
| | 0 | 5 < CO ₂ ≤ 15 | | Balance ^{a)} | | | |
| | 1 | 15 < CO ₂ ≤ 25 | | Balance ^{a)} | | | |
| | 2 | | 3 < O ₂ ≤ 10 | Balance ^{a)} | | | |
| | 3 | 0,5 ≤ CO ₂ ≤ 5 | 3 < O ₂ ≤ 10 | Balance ^{a)} | | | |
| | 4 | 5 < CO ₂ ≤ 15 | 0,5 ≤ O ₂ ≤ 3 | Balance ^{a)} | | | |
| | 5 | 5 < CO ₂ ≤ 15 | 3 < O ₂ ≤ 10 | Balance ^{a)} | | | |
| M3 | 6 | 15 < CO ₂ ≤ 25 | 0,5 ≤ O ₂ ≤ 3 | Balance ^{a)} | | | |
| | 7 | 15 < CO ₂ ≤ 25 | 3 < O ₂ ≤ 10 | Balance ^{a)} | | | |
| | 1 | 25 < CO ₂ ≤ 50 | | Balance ^{a)} | | | |
| | 2 | | 10 < O ₂ ≤ 15 | Balance ^{a)} | | | |
| | 3 | 25 < CO ₂ ≤ 50 | 2 < O ₂ ≤ 10 | Balance ^{a)} | | | |
| | 4 | 5 < CO ₂ ≤ 25 | 10 < O ₂ ≤ 15 | Balance ^{a)} | | | |
| | 5 | 25 < CO ₂ ≤ 50 | 10 < O ₂ ≤ 15 | Balance ^{a)} | | | |
| C | 1 | 100 | | | | | |
| R | 1 | balance | 0,5 ≤ O ₂ ≤ 30 | | | 0,5 ≤ H ₂ ≤ 15 | |
| | 2 | | | Balance ^{a)} | | 15 ≤ H ₂ ≤ 50 | |
| N | 1 | | | | | | 100 |
| | 2 | | | Balance ^{a)} | | | 0,5 ≤ N ₂ ≤ 5 |
| | 3 | | | Balance ^{a)} | | | 5 < N ₂ ≤ 50 |
| | 4 | | | Balance ^{a)} | | 0,5 ≤ H ₂ ≤ 10 | 0,5 ≤ N ₂ ≤ 5 |
| O | 1 | | | | | 0,5 ≤ H ₂ ≤ 50 | Rest |
| | 2 | | | 100 | | | |
| Z | | Mixed gases with components not included in the table or mixed gases with a composition outside the given areas. ^{b)} | | | | | |

^{a)} For this classification, argon may be replaced in whole or in part by helium.
^{b)} Two mixed gases with the same Z classification may not replace each other.

MAG welding of mild steel

| Product | Group ISO 14175 | Composite in % - Vol. | | | | Applications |
|-------------------|-----------------|-----------------------|-----------------|----------------|----|--------------------------------|
| | | Ar | CO ₂ | O ₂ | 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 |



MAG welding of stainless steels

| Product | Group ISO 14175 | Composition in % - Vol. | | | | | Applications |
|--------------------|-----------------|-------------------------|-----------------|----------------|----|----------------|--------------------------------|
| | | Ar | CO ₂ | O ₂ | He | H ₂ | |
| Inoxline X2 | M13 | 98 | | 2 | | | High-alloyed steels |
| Inoxline C2 | M12 | 97,5 | 2,5 | | | | High-alloyed steels |
| Inoxline He30 H2 C | Z | 67,88 | 0,12 | | 30 | 2 | Ni-alloys |
| Inoxline He15 C2 | M12 | 83 | 2 | | 15 | | High-alloyed steels |
| Inoxline C3 X1 | M14 | 96 | 3 | 1 | | | Low/restr. high alloyed steels |

Root shielding

| Product | Group ISO 14175 | Composite in % - Vol. | | | Applications |
|---------------|-----------------|-----------------------|----------------|----------------|--|
| | | Ar | N ₂ | H ₂ | |
| Argon | I1 | 100 | | | Steels as: austenitic + ferritic, duplex, super duplex, fine grain structural non ferritic metals, cu-ni |
| Forming gas H | N5 | 95 - 80 | 5 - 20 | | Stainless steels |
| Inoxline H2 | R1 | 98 | | 2 | Stainless steels, nickel and ni-base alloys |
| Inoxline H5 | R1 | 95 | | 5 | Stainless steels, nickel and ni-base alloys |

MIG welding

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|--------------------|-----------------|-----------------------|-----|----------------|----------------|---|
| | | Ar | He | H ₂ | N ₂ | |
| Welding Argon | I1 | 100 | | | | Aluminum, nonferrous metals |
| Inoxline He15 H2 N | Z | 82,985 | 15 | 2 | 0,015 | Ni-base-alloys |
| Helium | I2 | | 100 | | | Copper |
| Aluline He15 | I3 | 85 | 15 | | | Copper, aluminum, nickel + cunife-alloys |
| Aluline He30 | | 70 | 30 | | | |
| Aluline He50 | | 50 | 50 | | | |
| Aluline He70 | | 30 | 70 | | | |
| Aluline N | Z | 99,985 | | | 0,015 | Aluminum-alloys |
| Aluline He15 N | | 84,985 | 15 | | 0,015 | |
| Aluline He30 N | | 69,985 | 30 | | 0,015 | |
| Aluline He50 N | | 49,985 | 50 | | 0,015 | |



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