

UTP.



**Your reliable partner for petrochemical
industry plant and furnace construction**



PETROCHEMICAL INDUSTRY

■ UTP, an experienced reliable partner for welding of nickel based materials

The high nickel content welding consumables from the UTP range are available as covered rod electrodes, as inert gas wires (TIG and MIG), as flux cored wires and as wire/flux combinations for submerged arc welding.

Main application areas are in high quality equipment construction for the chemical, refrigeration, petrochemical and furnace construction industries.

Joint and plate welding in these areas requires welding materials, that are matched to the very different loads of the base materials and which meet the highest corrosion requirements.

The high nickel content UTP welding consumables are characterised by the features listed below:

- comprehensive and extensive high temperature and high corrosion level examinations
- high corrosion resistance
- increased heat resistance
- fully austenitic weld metal
- ideally suited for joining similar types of high temperature materials
- quality assurance as per DIN EN ISO 9001 together with DIN EN ISO 14001

UTP welding consumables provide the processor the guarantee, that they can meet the high quality requirements of their customers.



■ UTP welding consumables for petrochemical industry plant and furnace construction

Special welding consumables for high temperature applications, such as in the petrochemical and furnace construction industries are subject to even more stringent requirements due to increasing process parameters (operating temperature and pressure).

UTP welding consumables suitable for these industries are characterised by a wide range of application and are used successfully for the manufacture and repair of such systems.

The chemical composition of these welding consumables is chosen such as to provide a maximum of high temperature resistance, creep strength, oxidation resistance, structure stability and carburization stability in the case of connections made with the associated base material.

The UTP products listed here meet these stringent requirements and have already proven themselves outstandingly in the field for several decades.



■ UTP welding consumables for petrochemical industry plant and furnace construction

UTP Product Material No. DIN EN AWS	Welding process	Weld metal analysis	Mechanical properties of the pure weld deposit	Operation temperature °C	Approvals	Applications field	Basic material No.
2133 Mn ~ 1.4850 EN 1600 : EZ 21 33 B 4 2	SMAW	C 0.14 Si 0.3 Mn 4.5 Cr 21.0 Ni 33.0 Nb 1.3 Fe Rest	Rp0,2 > 410 MPa Rm > 600 MPa A > 25 % Kv > 70 J	1050	TÜV, TÜV Wien	Fully austenitic CrNi electrode for joining and surfacing of heat-resistant steels and cast steels	1.4876 ◦ X10 NiCrAlTi 32 20 1.4859 ◦ G- X10 NiCrNb 32 20 1.4958 ◦ X5 NiCrAlTi 31 20 1.4959 ◦ X8 NiCrAlTi 31 21
A 2133 Mn ~ 1.4850 EN ISO 12072 : ~ W/GZ 21 33 Mn Nb	GMAW GTAW	C 0.12 Si 0.3 Mn 4.5 Cr 21.0 Ni 33.0 Nb 1.2 Fe Rest	Rp0,2 400 MPa Rm 600 MPa A 25 % Kv 70 J	1050	TÜV	Fully austenitic rods and wires for joining and surfacing heat-resistant base materials	1.4859 ◦ G X 10 NiCrNb 32 20 1.4958 ◦ X 5 NiCrAlTi 31 20 1.4959 ◦ X 8 NiCrAlTi 31 21
2535 Nb 1.4853 EN 1600 : EZ 25 35 Nb B 6 2	SMAW	C 0.4 Si 1.0 Mn 1.5 Cr 25.0 Ni 35.0 Nb 1.2 Ti 0.1 Fe Rest	Rp0,2 > 480 MPa Rm > 700 MPa A > 8 %	1100	TÜV Wien	Basic coated electrode for welding of highly-carbonized, high-temperature cast steels, particularly for use in the petrochemical industry	1.4852 ◦ G-X 40 NiCrSiNb 35 25 1.4857 ◦ G-X 40 NiCrSi 35 25
A 2535 Nb 1.4853 EN 12072 : W/GZ 25 35 Zr	GMAW GTAW	C 0.4 Si 1.0 Mn 1.7 Cr 25.5 Ni 35.5 Nb 1.2 Ti + Zr + Fe Rest	Rp0,2 > 480 MPa Rm > 680 MPa A > 8 %	1150	TÜV Wien	Rods and wires for high temperature cast alloys with high carbon content in petrochemical industry.	1.4852 ◦ G-X 40 NiCrSiNb 35 25 1.4857 ◦ G-X 40 NiCrSi 35 25
3033 W* EN 1600 : EZ 3033 W B 6 2	SMAW	C 0.5 Si 1.0 Mn 1.5 Cr 30.0 Ni 33.0 W 4.5 Fe Rest	Rp0,2 > 550 MPa Rm > 700 MPa A > 5 %	1100	-	Basic coated electrode for high temperature cast steels with high carbon content	1.4868 ◦ G-X 50 CrNi 30 30 H 110 ◦ G-X 55 NiCrWZr 33 30 4
3545 Nb EN 1600 : EZ 35 45 Nb B 6 2 EN ISO 14172: E NiZ (NiCr35Fe15Nb0,8)	SMAW	C 0.45 Si 1.0 Mn 0.8 Cr 35.0 Ni 45.0 Nb 0.9 Fe Rest	Rp0,2 > 450 MPa Rm > 600 MPa A > 8 %	1175	-	Basic coated special electrode with high carbon content for high temperature cast materials. Main applications are reformer tubes in petrochemical industry.	G-X 50 NiCr 35 45
A 3545 Nb EN ISO 12072 : W/GZ 35 45 Nb	GMAW GTAW	C 0.45 Si 1.5 Mn 0.8 Cr 35.0 Ni 45.0 Nb 1.0 Ti 0.1 Zr 0.05 Fe Rest	Rp0,2 450 MPa Rm 650 MPa A 8 %	1175	-	Rods and wires for high temperature cast alloys with high carbon content in petrochemical industry.	G-X 45NiCrNbSiTi 45 35
2949 W* 2.4879 DIN 1736 : EL-NiCr28W (mod.)	SMAW	C 0.45 Si 1.1 Mn 1.2 Cr 29.0 Ni 49.0 W 4.5 Fe Rest	Rp0,2 > 480 MPa Rm > 650 MPa A > 5 %	1150	-	Basic coated special electrode with high carbon content for joining and surfacing high temperature cast materials.	2.4879 ◦ G-NiCr 28 W ◦ Alloy NA22H

* available on request

PETROCHEMICAL INDUSTRY

■ UTP welding consumables for petrochemical industry plant and furnace construction

UTP Product Material No. DIN EN AWS	Welding process	Weld metal analysis	Mechanical properties of the pure weld deposit	Operation temperature C°	Approvals	Applications field	Basic material No.
7015 Mo 2.4620 DIN 1736 : EL-NiCr16FeMn EN ISO 14 172 : 6092 (NiCr15Fe8NbMo) AWS A5.11 : E NiCrFe-2	SMAW	C 0.04 Si 0.4 Mn 3.0 Cr 16.0 Nb 2.2 Fe 6.0 Mo 1.5 Ni Rest	Rp0,2 > 380 MPa Rm > 620 MPa A > 35 % Kv > 80 J	900	TÜV, GL, DNV	Basic coated NiCrFe special electrode for high-temperature applications, for example suitable for use for petrochemical plant and equipment with temperatures up to 900 °C.	2.4816 ◦ NiCr 15 Fe 2.4951 ◦ NiCr 20 Ti 1.4876 ◦ X10 NiCrTiAl 32 20 1.4941 ◦ X8 CrNiTi 18 10
6222 Mo 2.4621 DIN 1736 : EL-NiCr20Mo9Nb EN ISO 14 172 : E Ni 6625 (NiCr22Mo9Nb) AWS A5.11 : E NiCrMo-3	SMAW	C 0.03 Si 0.4 Mn 0.6 Cr 22.0 Nb 3.3 Fe 1.5 Mo 9.0 Ni Rest	Rp0,2 > 450 MPa Rm > 760 MPa A > 30 % Kv > 75 J -196°C 45 J	1000	TÜV, DNV, ABS, GL, BV	Basic coated CrNiMo electrode for welding of corrosion-resistant and highly heat-resistant metals.	2.4856 ◦ NiCr 22 Mo 9 Nb ◦ Alloy 625 1.4876 ◦ X30 NiCrAlTi 32 20 1.4529 ◦ GX10 NiCrMoCu 25 20 5
A 6222 Mo 2.4831 DIN 1736 : SG-NiCr21Mo9Nb EN ISO 18 274 : S Ni 6625 (NiCr22Mo9Nb) AWS A5.14 : ER NiCrMo-3	GMAW GTAW	C < 0.02 Cr 22.0 Si < 0.2 Mo 9.0 Nb 3.5 Fe 1.0 Ni Rest	Rp0,2 > 420 MPa Rm > 720 MPa A > 30 % Kv +20 °C > 100 J -196 °C > 85 J	1100	TÜV, GL, DNV	Rods and wires for high corrosion resistant NiCrMo alloys for joining and surfacing of high-strength alloys on Ni basis of similar types.	2.4856 ◦ NiCr22Mo9Nb 1.4876 ◦ X 30 NiCrAlTi 32 20 1.4529 ◦ X2 NiCrMoCu 25 20 5
AF 6222 Mo PW 2.4621 DIN 1736 NiCr20Mo9Nb EN ISO 14 172 : S Ni 6625 (NiCr22Mo9Nb) AWS A5.34 : E NiCrMo-3Ti-4	FCAW	C 0.03 Si 0.4 Mn 0.4 Cr 21.5 Mo 9.0 Nb 3.5 Fe 0.5 P 0.010 S 0.010 Ni Rest	Rp0,2 490 MPa Rm 750 MPa A 30 % Kv +20 °C 70 J -196 °C 60 J	> 800	TÜV	Nickel-base flux-cored wire with slag for joining and surfacing on nickel-base materials of the same nature and these materials on C- and CrNi-steels.	2.4816 ◦ NiCr15Fe 2.4817 ◦ LC-NiCr15Fe 2.4851 ◦ NiCr23Fe 1.4876 ◦ X 10 NiCrAlTi 32 20
UP 6222 Mo, UP FX 6222 Mo 2.4831 DIN 1736 : SG-NiCr21Mo9Nb DIN EN ISO 18 274 : S Ni 6625 (NiCr22Mo9Nb) AWS A5.14: ER NiCrMo-3 DIN EN 760: SA-AB-2	SAW	C 0.02 Si 0.3 Mn 2.0 Mo 9.0 Cr 21.0 Nb 3.3 Fe < 2.0 Ni Rest	Rp0,2 460 MPa Rm 725 MPa A 40 % Kv +20°C 120 J -196°C 65 J	> 800	-	Wire flux combination for joint welding of base materials with the same or with a similar composition.	2.4856 ◦ NiCr22Mo9Nb X8 Ni9



■ UTP welding consumables for petrochemical industry plant and furnace construction

UTP Product Material No. DIN EN AWS	Welding process	Weld metal analysis	Mechanical properties of the pure weld deposit	Op- eration tempera- ture C°	Ap- prov- als	Applications field	Basic material No.
6170 Co 2.4628 DIN 1736 : EL-NiCr21Co12Mo EN ISO 14 172 : E Ni 6617 (NiCr21Co12Mo) AWS A5.11 : ~ ENiCrCoMo-I	SMAW	C 0.06 Si 0.7 Mn 0.1 Cr 21.0 Fe 1.0 Mo 9.0 Co 11.0 Al 0.7 Ti 0.3 Ni Rest	Rp0,2 450 MPa Rm 700 MPa A 35 % Kv 100 J	1100	TÜV	Basic coated CrNiCoMo electrode, particularly suitable for joint welding on highly heat-resistant Ni alloys of the same types, highly heat-resistant austenitic and cast alloys.	2.4663 ◦ NiCr21Co12Mo 1.4876 ◦ X10 NiCrAlTi 32 20 1.4859 ◦ GX10NiCrNb 32 20
A 6170 Co 2.4627 DIN 1736 : SG-NiCr22Co12Mo EN ISO 18 274 : S Ni 6617 (NiCr22Co12Mo9) AWS A5.14 : ER NiCrCoMo-I	GMAW GTAW	C 0.06 Cr 22.0 Si < 0.3 Mo 8.5 Fe 1.0 Co 11.5 Al 1.0 Ti 0.4 Ni Rest	Rp0,2 >450 MPa Rm >750 MPa A >30 % Kv >120 J	1100	TÜV	NiCrCoMo rods and wires for high temperature materials used for joining heat resistant and creep resistant nickel base alloys.	1.4958 ◦ X 5 NiCrAlTi 31 20 1.4959 ◦ X 8 NiCrAlTi 32 21 2.4663 ◦ NiCr23Co12Mo
UP 6170 Co, UP FX 6170 Co 2.4627 DIN 1736 : UP-NiCr22Co12 EN ISO 18 274 : S Ni 6617 (NiCr22Co12Mo9) AWS A5.14 : ER NiCrCoMo-I DIN EN 760: SA-AB-2	SAW	C 0.06 Si 0.5 Mn 1.5 Cr 21.0 Mo 8.5 Fe 2.5 Co 11.0 Al 0.9 Ti 0.3 Ni Rest	Rp0,2 450 MPa Rm 710 MPa A 35 % Kv 100 J	> 1000	TÜV (pro- posal)	Wire flux combination are applied the joint welding of base materials with identical nature.	2.4663 ◦ NiCr21Co12Mo 2.4851 ◦ NiCr23Fe 1.4876 ◦ X 10 NiCrAlTi 32 20
6225 Al 2.4649 DIN 1736 : EL-NiCr25Fe10Al3YC EN ISO 14 172 : E Ni 6025 AWS A5.11 : E NiCrFe-12	SMAW	C 0.2 Si 0.6 Mn 0.1 Cr 25.0 Fe 10.0 Al 1.8 Ti 0.1 Zr 0.03 Y 0.02 Ni Rest	Rp0,2 >500 MPa Rm >700 MPa A >15 % Kv >30 J	1200	-	Basic coated NiCrFe special electrode with additives for joint welding of highly heat-resistant and high-temperature Ni alloys of the same or similar types. This electrode is used particularly in furnace building up to operating temperatures of 1200°C.	2.4633 ◦ NiCr25-FeAlY ◦ Alloy 602 CA 2.4851 ◦ NiCr23Fe ◦ Alloy 601
A 6225 Al 2.4649 DIN 1736 : SG-NiCr25FeAl (mod.) DIN EN ISO 18 274 : S Ni 6704 (NiCr25FeAl3YC) AWS A5.14 : ER NiCrFe-12	GMAW GTAW	C 0.2 Si 0.5 Mn 0.1 Cr 25.0 Al 2.0 Ti 0.15 Y 0.08 Zr 0.05 Fe 10.0 Ni Rest	Rp0,2 500 MPa Rm 720 MPa A 25 % Kv 50 J	1200	TÜV	High nickel containing rods and wires for welding of identical and similar alloys.	2.4633 ◦ NiCr25FeAlY (Nicrofer 6025 HT) 2.4851 ◦ NiCr23Fe ◦ Alloy 601



PETROCHEMICAL INDUSTRY

■ UTP welding consumables for petrochemical industry plant and furnace construction

UTP Product Material No. DIN EN AWS	Welding process	Weld metal analysis	Mechanical properties of the pure weld deposit	Operation temperature C°	Approvals	Applications field	Basic material No.
68 H ~ 1.4842 EN 1600 : E 25 20 R AWS A5.4 : E 310-16	SMAW	C 0.10 Si 0.6 Mn 1.5 Cr 25.0 Ni 20.0 Fe Rest	Rp0,2 > 350 MPa Rm > 550 MPa A > 30 % Kv > 47 J	1100	-	Fully austenitic CrNi electrode for welding of heat-resistant steels and cast steels.	1.4710 ◦ G- X30 CrSi 6 1.4713 ◦ X10 CrAl 7 1.4762 ◦ X10 CrAl 24 1.4828 ◦ X15 CrNiSi 20 12 1.4832 ◦ G- X25 CrNiSi 20 14 1.4837 ◦ G- X40 CrNiSi 25 12 1.4840 ◦ G- X15 CrNi 25 20 1.4841 ◦ X15 CrNiSi 25 20 1.4845 ◦ X12 CrNi 25 21 1.4848 ◦ G- X40 CrNiSi 25 20
A 68 H 1.4842 EN ISO 12 072 : W/G 25 20 AWS A5.9 : ~ ER 310 (Si)	GMAW GTAW	C 0.12 Si 0.9 Mn 3.2 Cr 25.0 Ni 21.0 Fe Rest	Rp0,2 400 MPa Rm 650 MPa A 30 % Kv 60 J	1100	-	Rods and wires for heat and scale resistant CrNi steels.	1.4841 ◦ X 15 CrNiSi 25 20 1.4845 ◦ X 12 CrNi 25 21 1.4849 ◦ G-X 40 NiCrSiNb 38 18 1.4713 ◦ X 10 CrAl 7 1.4742 ◦ X 10 CrAl 18 1.4762 ◦ X 10 CrAl 24
5048 Nb* ~ 2.4680 DIN 1736 : EL-NiCr 50 Nb (mod.)	SMAW	C 0.1 Si 0.6 Mn 0.6 Cr 50.0 Nb 1.5 Ni Rest	Rp0,2 > 480 MPa Rm > 650 MPa A > 12 %	1150	-	Basic coated electrode for joint and build-up welding of high-temperature cast steels of the same or similar type. Particularly for use in industrial furnace fabrication.	2.4680 ◦ G NiCr50Nb ◦ Alloy 657 2.4879 ◦ G NiCr28W ◦ NA 22H

* available on request





Sales Program

Welding consumables:

Stick electrodes for welding nickel and nickel alloys
Stick electrodes for hardfacing
Special stick electrodes for welding different kinds of steel
Stick electrodes for welding cast iron
Stick electrodes for chamfering and cutting
Stick electrodes for welding non-ferrous metals
Stick electrodes for welding stainless, acid- and heat resistant steels
Silver solders, brazing alloys, soft solders
Fluxes
Stick electrodes for welding low- and medium-alloyed steels
MIG/MAG wires and TIG rods
Flux-cored wires
Submerged arc welding wires and fluxes

Flame and Plasma spraying powders:

Metal powders
EXOBOND powders
UNIBOND powders
HABOND powders
PTA powders (Plasma)

UTP Schweissmaterial

Zweigniederlassung der
Böhler Schweisstechnik Deutschland GmbH
Elsässer Straße 10
D-79189 Bad Krozingen

Fon: +49 (0) 7633 - 409 - 01 (24 h Serviceline)
Fax: +49 (0) 7633 - 409 - 222
Email: info@utp-welding.com
Web: www.utp-welding.com

If it can be welded – we know how.



UTP is a certificated company.
TÜV Certification according to DIN EN ISO 9001
DIN EN ISO 14001