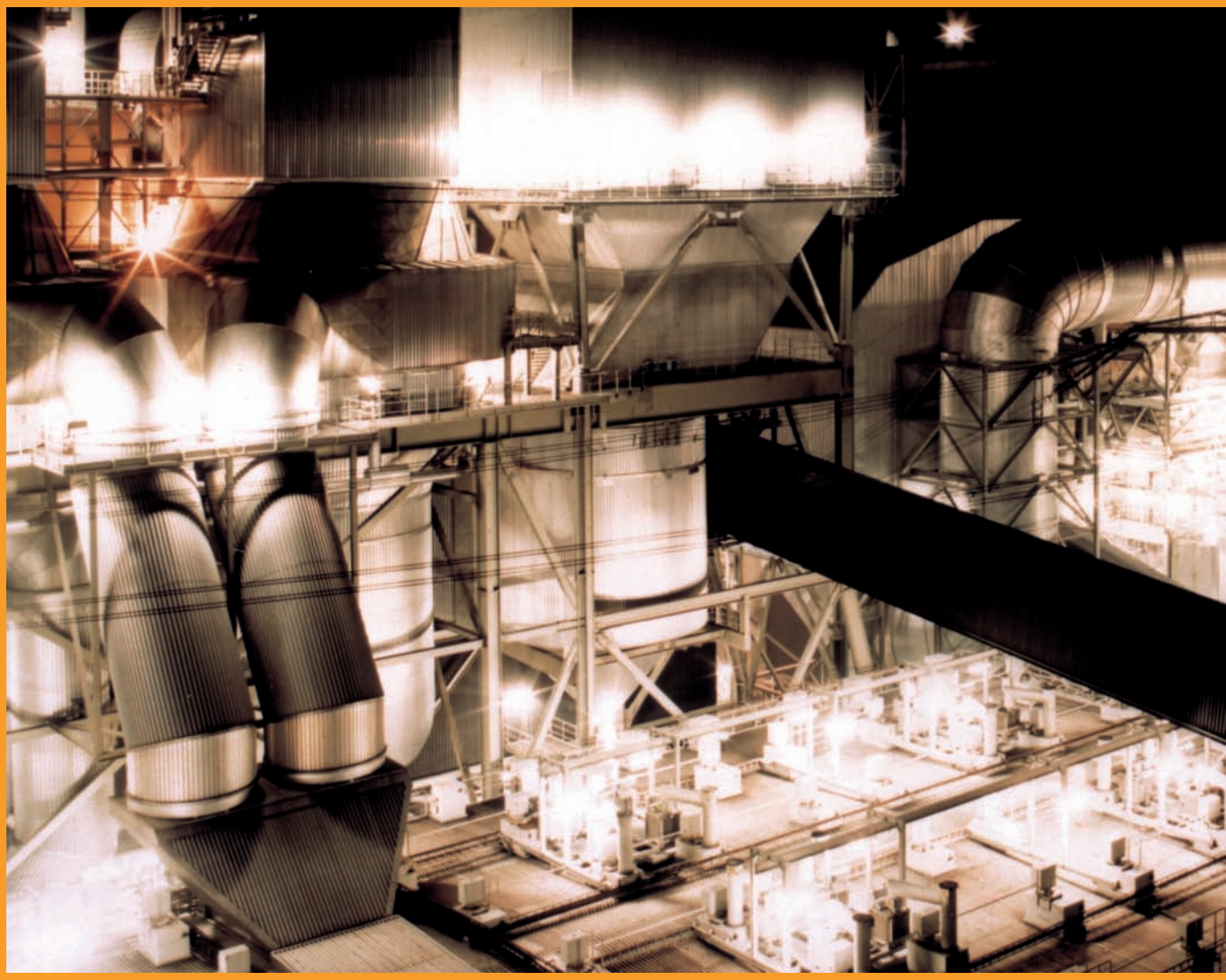

Your reliable partner for the chemical equipment construction

CHEMICAL 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 the chemical equipment construction

The welding consumables described here have a wide area of application. The austenitic welding consumables are used for joint welding on similar-type as well as on low-alloyed, non-stabilised, low-carbon and stabilised corrosion and heat-resistant CrNi steels.

The austenitic molybdenum-content welding consumables are used for plate and joint welding of similar type and non-similar type CrNiMo steels.
They are for welding the appropriate base materials used to comply with maximum corrosion requirements in chemical process equipment construction, in environmental engineering and for off-shore structures.

In the case of plant subject to chlorinated media, over-alloy welding is used if possible i.e. the welding consumable should have a higher pitting index than the base material to be welded. All low alloy base materials and similar base material 2.4685 can be welded with the highest alloy electrode UTP 759 Kb.

The NiMo alloys have been developed for similar base materials, which are subject to reducing media. These materials are characterised by their excellent resistance against hydrochloric acid, over a broad temperature and concentration range as well as chloride contaminated sulphuric acid.

Cu alloy materials such as 2.4858 and 1.4563 are often used for components which are subject to sulphur and phosphor containing media. UTP 4225 or UTP 3127 LC has proven particularly suitable for such demands and for welding these materials.

UTP welding consumables for the chemical equipment construction

UTP-Typ Material No. DIN EN AWS	Welding process	Weld metal analysis	Mechanical properties of the pure weld deposite	Operation temperature	Coefficient of efficiency Cr+3.3x Mo+16xN	Approvals	Application field	Basic Material No.
68 1.4551 DIN 8556 : E 19 9 Nb R 26 EN ISO 1600 : E 19 9 Nb R 3 2 AWS A5.4 : E 347-17	SMAW	C 0.03 Si 0.8 Cr 19.0 Ni 10.0 Mn 0.5 Nb 0.25 Fe Rest	Rp0,2 > 380 MPa Rm > 590 MPa A > 30 % Kv > 47 J	-196°C up to 400°C	-	TÜV, ABS, GL, TÜV Wien.	The rutile coated welding electrode is suitable for joining and surfacing of stabilized and non stabilized CrNi steels.	1.4301 ∘ X5 CrNi 18 10 1.4312 ∘ G- X10CrNi 18 8 1.4541 ∘ X6 CrNiTi 18 10 1.4550 ∘ X6 CrNiNb 18 10 1.4552 ∘ G- X5 CrNiNb 18 9
A 68 1.4551 DIN 8556 : SGX 5 CrNiNb 19 9 EN ISO 12 072 : G (W) 19 9 Nb (Si) AWS A5.9 : ER 347 (Si)	GMAW GTAW	C 0.03 Si 0.4 Mn 1.5 Cr 19.5 Ni 9.5 Nb 0.55	Rp0,2 420 MPa Rm 600 MPa A 30 % Kv 100 J	-196°C up to 400°C	-	TÜV, TÜV Wien	Rods and wires for joining and surfacing in chemical apparatus and vessel construction.	1.4301 ∘ X 5 CrNi 18 10 1.4312 ∘ G- X 10 CrNi 18 8 1.4541 ∘ X 6 CrNiTi 18 10 1.4550 ∘ X 6 CrNiNb 18 10 1.4552 ∘ G- X 5 CrNiNb 19 11 1.4878 ∘ X 12 CrNiTi 18 9 1.6902 ∘ G- X 6 CrNi 18 10 1.6905 ∘ G- X 5 CrNiNb 18 10 1.6907 ∘ X 3 CrNiN 18 10
68 LC 1.4316 DIN 8556 : E 19 9 L R 26 EN ISO 1600 : E 19 9 L R 3 2 AWS A5.4 : E 308 L-17	SMAW	C 0.025 Si 0.8 Cr 19.0 Ni 10.0 Mn 0.5 Fe Rest	Rp0,2 > 350 MPa Rm > 520 MPa A > 35 % Kv > 47 J	-120 °C up to 350°C	-	TÜV, ABS, GL	Low carbon, rutile coated electrode is used for joining and building up of identical low carbon, austenitic CrNi steels.	1.4301 ∘ X5 CrNi 18 10 1.4306 ∘ X2 CrNi 18 11 1.4311 ∘ X2 CrNiN 18 10 1.4312 ∘ G- X10 CrNi 18 8 1.4541 ∘ X6 CrNiTi 18 10
A 68 LC 1.4316 DIN 8556 : SGX2 CrNi 19 9 EN ISO 12 072 : G (W) 19 9 L (Si) AWS A5.9 : ER 308 L (Si)	GMAW GTAW	C 0.02 Si 0.4 Mn 1.5 Cr 20.0 Ni 10.0	Rp0,2 400 MPa Rm 600 MPa A 35 % Kv 100 J	-196°C up to 400°C	-	TÜV	Rods and wires for welding of low carbon, austenitic CrNi steels of the same type	1.4301 ∘ X 5 CrNi 18 10 1.4306 ∘ X2 CrNi 19 11 1.4541 ∘ X 6 CrNiTi 18 10 1.4550 ∘ X 6 CrNiNb 18 10 1.6902 ∘ G- X 6 CrNi 18 10 1.6905 ∘ G- X 5 CrNiNb 18 10 1.6907 ∘ X 3 CrNiN 18 10
AF 68 LC 1.4316 EN ISO 12 073 : T 19 9 L RM AWS A5.22 : E 308 LT 1-4	FCAW	C 0.025 Si 0.6 Mn 1.5 Cr 19.5 Ni 10.0	Rp0,2 380 MPa Rm 560 MPa A 35 % Kv 70 J	-196 °C up to: grain stability up to 350 °C scale resistant up to 800°C		TÜV	Low carbon CrNi flux cored wire with rutile slag for welding of CrNi steels and cast steels.	1.4301 ∘ X 5 CrNi 18 10 1.4303 ∘ X 4 CrNi 18 12 1.4306 ∘ X 2 CrNi 19 11 1.4308 ∘ G- X5 CrNi 19 10 1.4312 ∘ G- X 10 CrNi 18 8 1.4541 ∘ X 6 CrNiTi 18 10 1.4550 ∘ X 6 CrNiNb 18 10
68 MoLC 1.4430 DIN 8556 : E 19 12 3 L R 2 6 EN ISO 1600 : E 19 12 3 L R 3 2 AWS A5.4 : E 316 L-17	SMAW	C 0.025 Si 0.8 Mo 2.8 Cr 18.0 Ni 12.0 Mn 0.5 Fe Rest	Rp0,2 380 MPa Rm 560 MPa A 30 % Kv 60 J	-120 °C up to 400°C	-	TÜV, ABS, TÜV Wien, DB, GL, DNV	The rutile coated welding electrode with a low carbon content is used for joining and surfacing CrNiMo steels and CrNiMo cast steels.	1.4401 ∘ X5 CrNiMo 17 12 2 1.4404 ∘ X2 CrNiMo 17 13 2 1.4436 ∘ X5 CrNiMo 17 13 3 1.4571 ∘ X6 CrNiMoTi 17 12 2 1.4573 ∘ X10 CrNiMoTi 18 12 1.4580 ∘ X6 CrNiMoNb 17 12 2 1.4583 ∘ X10 CrNiMoNb 18 12

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UTP welding consumables for the chemical equipment construction

UTP-Typ Material No. DIN EN AWS	Welding process	Weld metal analysis	Mechanical properties of the pure weld deposite	Operation temperature	Coefficient of efficiency Cr+3.3x Mo+16xN	Approvals	Application field	Basic Material No.
A 68 MoLC 1.4430 DIN 8556 : SGX2 CrNiMo 19 12 EN ISO 12 072 : G (W) 19 12 3 L (Si) AWS A5.9 : ER 316 L (Si)	GMAW GTAW	C 0.02 Si 0.4 Mn 1.5 Mo 2.8 Cr 18.5 Ni 12.0	Rp0,2 420 MPa Rm 600 MPa A 35 % Kv 100 J	-196°C up to 350°C	-	TÜV, GL	Rods and wires for welding of low carbon CrNiMo steels and cast steels with high chemical resistance.	1.4401 ∘ X 5 CrNiMo 17 12 2 1.4404 ∘ X 2 CrNiMo 17 13 2 1.4435 ∘ X 2 CrNiMo 18 14 3 1.4580 ∘ X 6 CrNiMoNb 17 12 2 1.4571 ∘ X 6 CrNiMoTi 17 12 2
AF 68 MoLC 1.4430 EN ISO 12 073 : T 19 12 3 L RM AWS A5.22 : E 316 LT 1 - 4	FCAW	C 0.025 Si 0.6 Mn 1.5 Cr 19.5 Ni 12.5 Mo 2.7	Rp0,2 400 MPa Rm 560 MPa A 35 % Kv 55 J	-120°C up to: grain stability up to 400 °C scale resistant up to 800°C	-	TÜV	Low carbon CrNiMo flux cored wire with rutile slag for joining and surfacing on CrNiMo steels and cast steels.	1.4401 ∘ X 5 CrNiMo 17 12 2 1.4404 ∘ X 2 CrNiMo 17 13 2 1.4406 ∘ X 2 CrNiMoN 17 12 2 1.4435 ∘ X 2CrNiMo 18 14 3 1.4436 ∘ X 5 CrNiMo 17 13 3 1.4571 ∘ X 6 CrNiMoTi 17 12 2 1.4580 ∘ X 6 CrNiMoNb 17 12 2 1.4583 ∘ X 10 CrNiMoNb 18 12
6824 LC ~ 1.4332 DIN 8556 : E 23 12 L R 2 6 EN ISO 1600 : E 23 12 L R 3 2 AWS A5.4 : E 309 L-17	SMAW	C 0.025 Si 0.8 Cr 22.5 Ni 12.5 Mn 0.8 Fe Rest	Rp0,2 > 390 MPa Rm > 550 MPa A > 30 % Kv > 47 J	-60°C up to: scale resistant up to 1000°C	-	TÜV, GL, DNV	Rutile coated electrode is used for joining and surfacing of stainless and heat resistant steels and cast steels.	1.4541 ∘ X6 CrNiTi 18 10 1.4550 ∘ X6 CrNiNb 18 9 1.4583 ∘ X10 CrNiMoNb 18 12 1.4712 ∘ X10 CrSi 6 1.4724 ∘ X10 CrAl 13 1.4742 ∘ X10 CrAl 13 1.4825 ∘ G- X25 CrNiSi 18 9 1.4826 ∘ G- X40 CrNiSi 22 9 1.4828 ∘ X 15 CrNiSi 20 12
A 6824 LC 1.4332 DIN 8556 : SGX2 CrNi 24 12 EN ISO 12 072 : G (W) 23 12 L AWS A5.9 : ER 309 L (Si)	GMAW GTAW	C 0.02 Si 0.4 Mn 1.8 Cr 23.0 Ni 13.5	Rp0,2 400 MPa Rm 590 MPa A 30 % Kv 140 J	-120°C up to 300°C	-	TÜV, GL	Rods and wires for joining and surfacing in chemical apparatus and vessel construction.	1.4306 ∘ X 2 CrNi 19 11 1.4401 ∘ X 5 CrNiMo 17 12 2 1.4404 ∘ X2 CrNiMo 17 13 2 1.4541 ∘ X 6 CrNiTi 18 10 1.4550 ∘ X 6 CrNiNb 18 10 1.4571 ∘ X 6 CrNiMoTi 17 12 2 1.4580 ∘ X 6 CrNiMoNb 17 12 2

UTP welding consumables for the chemical equipment construction

UTP-Typ Material No. DIN EN AWS	Welding process	Weld metal analysis	Mechanical properties of the pure weld deposite	Op-eration tempera-ture	Coefficient of efficiency Cr+3.3x Mo+16xN	Ap-prov-als	Application field	Basic Material No.
AF 6824 LC 1.4332 EN ISO 12 073 : T 23 12 L RM AWS A5.22 : E 309 LT 1 - 4	FCAW	C 0.025 Si 0.6 Mn 1.5 Cr 24.0 Ni 12.0	Rp0,2 400 MPa Rm 600 MPa A 35 % Kv 60 J	-60°C up to 300°C	-	TÜV	Low carbon flux cored wire with rutile slag for joining and surfacing alloyed Cr - CrNi steels with non- and low-alloyed steels and cast steels.	1.4306 ∘ X 2 CrNi 19 11 1.4401 ∘ X 5 CrNiMo 17 12 2 1.4404 ∘ X2 CrNiMo 17 13 2 1.4541 ∘ X 6 CrNiTi 18 10 1.4550 ∘ X 6 CrNiNb 18 10 1.4571 ∘ X 6 CrNiMoTi 17 12 2 1.4580 ∘ X 6 CrNiMoNb 17 12 2
6824 MoLC DIN 8556 : ~E 23 12 3 L R 26 EN ISO 1600 : E 23 12 2 L R 3 2 AWS A5.4: ~E 309 Mo L-17	SMAW	C 0.03 Si 0.8 Mo 2.8 Cr 23.0 Ni 12.0 Mn 1.5 Fe Rest	Rp0,2 > 490 MPa Rm > 670 MPa A > 25 % Kv > 47 J	up to 300°C	-	-	Low carbon CrNiMo electrode for dissimilar metal joints and claddings.	1.4401 ∘ X5 CrNiMo 17 12 2 1.4404 ∘ X2 CrNiMo 17 13 2 1.4580 ∘ X6 CrNiMoNb 17 12 2 1.4571 ∘ X6 CrNiMoTi 17 12 2
A 6824 MoLC 1.4459 DIN 8556 : SGX2 CrNiMo 23 13 EN ISO 12 072 : G (W) 23 12 L ER 309MoL (Si)	GMAW GTAW	C 0.02 Si 0.4 Mn 1.5 Cr 22.0 Ni 14.5 Mo 2.5	Rp0,2 > 500 MPa Rm > 700 MPa A > 25 %	up to 300°C	-	TÜV	Rods and wires for joining and surfacing of steels of difficult weldability, clad-dings, cushion layers, repairs on hot working tools.	1.4401 ∘ X5 CrNiMo 17 12 2 1.4404 ∘ X2 CrNiMo 17 13 2 1.4580 ∘ X6 CrNiMoNb 17 12 2 1.4571 ∘ X6 CrNiMoTi 17 12 2
1915 HST 1.4455 DIN 8556 : E 20 16 3 Mn LB 20+ EN ISO 1600 : E 20 16 3 Mn N LB 42 AWS A5.4: E 316 L Mn-15	SMAW	C 0.025 Si 0.4 Mo 3.0 Cr 21.0 Ni 16.0 Mn 5.7 N 0.18	Rp0,2 450 MPa Rm 640 MPa A 30 % Kv 80 J	-196°C up to 300°C	34	-	Basic coated special electrode for joining and build-up welding of corrosion-resistant CrNiMo steels. Particularly suitable for fabrication of urea synthesis plant.	1.3952 ∘ X3 CrNiMoN 27 5 2 1.4404 ∘ X2 CrNiMo 17 13 2 1.4406 ∘ X5 NiCrMoCuTi 20 18 1.4429 ∘ X2 CrNiMoN 17 13 3 1.4435 ∘ X2 CrNiMo 18 14 3 1.5680 ∘ X12 Ni 19 1.5638 ∘ G9 Ni14
A 1915 HST 1.4455 DIN 8556 : SGX2 CrNiMnMoN EN ISO 12 072 : G(W) 20 16 3 Mn L AWS A5.9: ER 316 L Mn	GMAW GTAW	C 0.02 Si 0.55 Mn 7.5 Cr 19.5 Ni 15.5 Mo 2.8 N 0.15	Rp0,2 450 MPa Rm 650 MPa A 30 % Kv 100 J	-196°C up to 300°C	32	-	Rods and wires for joining and surfacing in the chemical apparatus construction where a low carbon, austenitic CrNiMo weld deposit with less than 0,5% ferrite is required.	1.3952 ∘ X3 CrNiMoN 27 5 2 1.4404 ∘ X2 CrNiMo 17 13 2 1.4406 ∘ X5 NiCrMoCuTi 20 18 1.4429 ∘ X2 CrNiMoN 17 13 3 1.4435 ∘ X2 CrNiMo 18 14 3 1.5680 ∘ X12 Ni 19 1.5638 ∘ G9 Ni14
1925 1.4519 DIN 8556 : E 20 25 5 LCuR26 EN ISO 1600 : E 20 25 Cu N L R 3 2 AWS A5.4 : ~E385-16	GMAW GTAW	C 0.05 Si 0.8 Mn 1.5 Cr 20.0 Ni 25.0 Mo 4.5 Cu 1.5	Rp0,2 400 MPa Rm 580 MPa A 30 % Kv 70 J	-269°C up to 400°C	35	TÜV, TÜV Wien	Rutile basic coated electrode for joining and surfacing on stainless steels and cast steels with high corrosion resistance.	1.4500 ∘ G- X7 CrNiMoCuNb 25 20 1.4505 ∘ X4 NiCrMoCuNb 20 18 2 1.4506 ∘ X5 NiCrMoCuTi 20 18 1.4539 ∘ X1 NiCrMoCu 25 20 5 1.4439 ∘ X2CrNiMoN 17 13 15

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UTP welding consumables for the chemical equipment construction

UTP-Typ Material No. DIN EN AWS	Welding process	Weld metal analysis	Mechanical properties of the pure weld deposite	Operation temperature	Coefficient of efficiency Cr+3.3x Mo+16xN	Approvals	Application field	Basic Material No.
A 1925 1.4519 DIN 8556 : SGX2 CrNiMoCu 20 25 EN ISO 12 072 : G(W) 20 25 5 Cu L AWS A5.9 : ER 385	GMAW GTAW	C 0.02 Si 0.5 Mn 1.7 Cr 20.0 Ni 25.0 Mo 4.5 Cu 1.5	Rp0,2 400 MPa Rm 600 MPa A 35 % Kv 100 J	-269°C up to 400°C	35	TÜV	Rods and wires for joining and surfacing of corrosion resistant and austenitic CrNi and CrNiMo steels	1.4500 ∘ G- X7 CrNiMoCuNb 25 20 1.4505 ∘ X4 NiCrMoCuNb 20 18 2 1.4506 ∘ X5 NiCrMoCuTi 20 18 1.4538 ∘ G- X 1 NiCrMoCuN 25 20 5 1.4539 ∘ X1 NiCrMoCu 25 20 5
6808 Mo DIN 8556 : ~E 22 9 3 LR 26 EN ISO 1600 : E 22 9 3 N LR 3 2 AWS A5.4 : E 22 09-17	SMAW	C 0.025 Si 0.9 Mo 3.0 Cr 22.5 Ni 9.5 Mn 0.9 Cu 0.8 N 0.2	Rp0,2 > 540 MPa Rm > 680 MPa A > 22 % Kv > 47 J	-60°C up to 250°C	36	TÜV	Rutile basic coated electrode for joining and build-up welding of corrosion resistant steels and cast steels with austenitic-ferritic structure.	1.4347 ∘ G-X 6 CrNi 26 7 1.4460 ∘ X3 CrNiMoN 27 5 2 1.4462 ∘ X2 CrNiMoN 22 5 3 1.4463 ∘ G-X 6 CrNiMo 24 8 2
A 6808 Mo ~ 1.4462 DIN 8556 : SGX2 CrNiMo 22 8 3 EN ISO 12 072 : G(W) 22 9 3 N L AWS A5.9 : ER 22 09	GMAW GTAW	C 0.015 Si 0.25 Mn 1.5 Cr 22.8 Ni 9.2 Mo 3.0 N 0.14	Rp0,2 600 MPa Rm 800 MPa A 30 % Kv 80 J	-60°C up to 250°C	35	TÜV, GL	Rods and wires for welding of corrosion-resistant steels and cast steels, so-called duplex steels	1.4347 ∘ G- X 6 CrNi 26 7 1.4460 ∘ X 3 CrNiMoN 27 5 2 1.4462 ∘ X 2 CrNiMoN 22 5 3
6810 MoKb DIN 8556 : E 25 10 4 LB 20 EN ISO 1600 : E 25 9 4 N LB 42 AWS A5.4: E 25 53 - 15	SMAW	C 0.03 Si 0.55 Mo 4.3 Cr 25.5 Ni 9.5 Mn 1.5 N 0.25	Rp0,2 720 MPa Rm 850 MPa A 22 % Kv 70 J	-50°C up to 250°C	44	-	Basic coated, low carbon electrode for welding of highly corrosion resistant steels and cast steels, the so-called duplex and super-duplex steels	1.4469 ∘ G- X 2 CrNiMoN 25 7 4 1.4463 ∘ G- X6 CrNiMo 24 82 1.4460 ∘ X 4 CrNiMoN 27 5 2

UTP welding consumables for the chemical equipment construction

UTP-Typ Material No. DIN EN AWS	Welding process	Weld metal analysis	Mechanical properties of the pure weld deposite	Operation temperature	Coefficient of efficiency Cr+3.3x Mo+16xN	Approvals	Application field	Basic Material No.
A 6810 Mo ~ 1.4501 DIN 8556 : SG-X2 CrNiMoN 25 10 4 EN ISO 12 072 : G(W) 25 10 4 L AWS A5.9 : ~ ER 25 53	GMAW GTAW	C 0,02 Si 0,3 Mn 0,7 Cr 25,2 Ni 9,2 Mo 4,0 N 0,22	Rp0,2 720 MPa Rm 850 MPa A 22 % Kv 70 J	-50°C up to 250°C	44	-	Rods and wires for joining and build-up welding of steels and cast steels with austenitic-ferritic structure (super-duplex steels)	1.4469 ∘ G- X 2 CrNiMoN 25 7 4 1.4463 ∘ G- X6 CrNiMo 24 82 1.4460 ∘ X 4 CrNiMoN 27 5 2
068 HH 2.4648 DIN 1736 : EL-NiCr19Nb EN ISO 14 172 : E Ni 6082 (NiCr20Mn3Nb) AWS A5.11 : E NiCrFe-3 (mod.)	SMAW	C 0.03 Si 0.4 Mo 1.5 Cr 19.0 Fe 3.0 Mn 5.0 Nb 2.2 Ni Rest	Rp0,2 390 MPa Rm 620 MPa A 35 % Kv > 80 J	-196°C up to 900°C	-	TÜV, ABS, KTA GL, BV, DNV	Basic coated NiCrFe electrode for welding of corrosion and highly heat resistant base materials.	2.4817 ∘ LC NiCr15Fe 2.4851 ∘ NiCr23Fe 1.4876 ∘ X10 NiCrTiAl 32 20 1.4941 ∘ X8 CrNiTi 18 10
A 068 HH 2.4806 DIN 1736 : SG-NiCr20Nb EN ISO 18 274 : S Ni 6082 (NiCr20Mn3Nb) AWS A5.14 : ER NiCr-3	GMAW GTAW	C < 0.02 Si < 0.2 Mn 3.0 Cr 20.0 Fe 0.8 Nb 2.7 Ni Rest	Rp0,2 > 420 MPa Rm > 640 MPa A > 35 % Kv + 20°C > 200 J -196°C > 100 J	-196°C up to 900°C	-	TÜV, ABS, KTA GL, DNV, TÜV Wien	NiCrFe rods and wires for joint welding of highly heat resistant nickel base alloys of the same and similar types and heat resistant austenitic.	1.4816 ∘ NiCr15Fe 2.4817 ∘ LC - NiCr15Fe 2.4851 ∘ NiCr23Fe 1.4876 ∘ X 10 NiCrAlTi 32 20 1.6907 ∘ X 3 CrNiN 18 10
AF 068 HH 2.4648 DIN 1736 : T NiCr19Nb (mod.) EN ISO 14 172 : E Ni 6082 (NiCr20Mn3Nb) AWS A5.34 : E NiCr 3 T1-4	FCAW	C 0.03 Si 0.4 Mn 3.0 Cr 20.0 Nb 2.4 Fe 1.4 Ni Rest	Rp0,2 400 MPa Rm 650 MPa A 35 % Kv 120 J	-196°C up to 900°C	-	TÜV	Nickel base flux cored wire with slag for joining and build-up welding of nickel alloys of the same and similar types.	2.4816 ∘ NiCr15Fe 2.4817 ∘ LC NiCr15Fe 1.4583 ∘ X 10 CrNiMoNb 18 12 1.4876 ∘ X 10 NiCrAlTi 32-21 1.4859 ∘ G X 10 NiCrNb 32-20 1.0562 ∘ StE 355
UP 068 HH / UP FX 068 HH 2.4806 DIN 1736 : UP-NiCr20 Nb EN ISO 18 274 : S Ni 6082 (NiCr20Mn3Nb) AWS A5.14 : ER NiCr-3 Pulver: DIN EN 760: SA AB 2	SAW	C < 0.03 Si < 0.2 Mn 3.0 Cr 20.0 Fe < 1.5 Nb 2.6 Ni Rest	Rp0,2 350 MPa Rm 600 MPa A 35 % Kv 100 J	-196°C up to 900°C	-	-	Combination of wire and flux for nickel and nickel alloys. Particularly suitable for joint welding of base materials of similar types and low-alloy steels with stainless steel.	2.4816 ∘ NiCr15Fe 2.4817 ∘ LC NiCr15Fe 2.4851 ∘ NiCr23Fe 1.4876 ∘ X 10 NiCrAlTi 32 20
7015 2.4807 DIN 1736 : EL-NiCr15FeMn EN ISO 14 172 : Ni 6182 (NiCr15Fe6Mn) AWS A5.11 E NiCrFe-3	SMAW	C < 0.04 Si 0.4 Cr 16.0 Fe 6.0 Mn 6.0 Nb 2.2 Ni Rest	Rp0,2 > 380 MPa Rm > 620 MPa A > 35 % Kv > 80 J	-196°C up to 900°C	-	TÜV, GL, DNV, KTA	Basic coated electrode for NiCr alloys and plating. This filler, with controlled cobalt content is used for joining and build-up welding of Ni-based alloys.	CrNi Stähle: 1.6905 ∘ G-X5 CrNiNb 18 10 1.6907 ∘ X3 Cr NiN 18 10 CrMo Stähle: 1.7380 ∘ 10CrMo 9 10

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UTP welding consumables for the chemical equipment construction

UTP-Typ Material No. DIN EN AWS	Welding process	Weld metal analysis	Mechanical properties of the pure weld deposite	Operation temperature	Coefficient of efficiency Cr+3.3x Mo+16xN	Approvals	Application field	Basic Material No.
AF 7015 2.4807 DIN 1736 : NiCr15FeMn EN ISO 14 172 : E Ni 6182 (NiCr15Fe6Mn) AWS A5.11 : ENiCrFe 3 AWS A5.34 : E NiCrFe 3T1-4	FCAW	C 0.03 Si 0.4 Mn 7.0 Cr 15.0 Nb 1.5 Fe 1.5 Ni Rest	Rp0,2 390 MPa Rm 610 MPa A 35 % Kv 120 J	-196°C up to 850°C	-	-	Nickel base flux cored wire with slag for joining and build-up welding of Ni-based materials of similar types and dissimilar joinings with C and CrNi steels	2.4816 ◦ NiCr15Fe 2.4817 ◦ LC NiCr15Fe 1.4583 ◦ X 10 CrNiMoNb 18 12 1.0562 ◦ StE 355
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 Mo 9.0 Cr 22.0 Fe 1.5 Mn 0.6 Nb 3.3 Ni Rest	Rp0,2 > 450 MPa Rm > 760 MPa A > 30 % Kv > 75 J	-196°C up to 1000°C (<500°C, >800°C)	52	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 1.4876 ◦ X30 NiCrAlTi 32 20 1.4529 ◦ GX10 NiCrMoCu 25 20 5 1.5662 ◦ X8Ni9
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 Si < 0.2 Cr 22.0 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	-196°C up to 1000°C (<500°C, >800°C)	52	TÜV, GL, DNV	Rods and wires for high corrosion resistant NiCrMo alloys, for joining and build-up welding of high-strength alloys on Ni basis of similar types.	1.4529 ◦ X 1 NiCrMoCuN 25 20 6 1.4539 ◦ X 1 NiCrMoCuN 25 20 5 2.4858 ◦ NiCr21MO 2.4856 ◦ NiCr22Mo9Nb 1.5662 ◦ X8Ni9
AF 6222 Mo PW 2.4621 DIN 1736 NiCr20Mo9Nb EN ISO 14 172 : E Ni 6625 AWS A5.34 : E NiCrMo-3T1-4	FCAW	C 0.03 Si 0.4 Mn 0.4 Cr 21.5 Mo 9.0 Nb 3.5 Fe 0.5 Ni Rest	Rp0,2 490 MPa Rm 750 MPa A 30 % Kv +20°C 70 J -196°C 60 J	-196°C up to 1000°C (<500°C, >800°C)	52	TÜV	Nickel base flux cored wire with slag for high-quality welding of nickel base materials of the same type and dissimilar joints with C and CrNi steels.	2.4856 ◦ NiCr22Mo9Nb 1.4539 ◦ X NiCrMoCu 25 20 5 1.4583 ◦ X NiCrNb 18 12 1.0562 ◦ StE 355 1.5662 ◦ X 8Ni9
UP 6222 Mo / **UP FX 6222 Mo** 2.4831 DIN 1736 : SG-NiCr21Mo9Nb EN ISO 18 274 : S Ni 6625 (NiCr22Mo9Nb) AWS A5.14: ER NiCrMo-3 Pulver: DIN EN 760: SA AB 2	SAW	C 0.02 Si 0.3 Mn 2.0 Cr 21.0 Nb 3.3 Ni Rest Fe < 2.0 Mo 9.0	Rp0,2 460 MPa Rm 725 MPa A 40 % Kv +20°C 120 J -196°C 65 J	-196°C up to 1000°C (<500°C, >800°C)	51	TÜV	Wire flux combination for high-quality welding of base metals with the same or similar chemical compositions.	2.4856 ◦ NiCr22Mo9Nb Alloy 625 (UNS NO 6625) 1.5662 ◦ X 8Ni9
704 Kb 2.4612 DIN 1736 : EL-NiMo15Cr15Ti EN ISO 14 172 : E Ni 6455 (NiCr16Mo15Ti) AWS A5.11 : E NiCrMo-7	SMAW	C < 0.015 Si < 0.2 Mo 15.5 Cr 17.0 Fe 1.0 Mn 0.7 Ni Rest	Rp0,2 > 450 MPa Rm > 720 MPa A > 30 % Kv > 70 J	-	68	TÜV	Basic coated electrode for welding of highly corrosion-resistant NiCrMo alloys, e.g. C4. Generally used in chemical equipment manufacturing.	2.4610 ◦ NiMo16Cr16Ti

UTP welding consumables for the chemical equipment construction

UTP-Typ Material No. DIN EN AWS	Welding process	Weld metal analysis	Mechanical properties of the pure weld deposite	Op-eration tempera-ture	Coefficient of efficiency Cr+3.3x Mo+16xN	Ap-prov-als	Application field	Basic Material No.
A 704* 2.4611 DIN 1736 : SG-NiMo16Cr16Ti EN ISO 18 274 : S Ni 6455 (NiCr16Mo16Ti) AWS A5.14 : ER NiCrMo-7	GMAW GTAW	C < 0.01 Si < 0.1 Cr 16.0 Mo 16.0 Fe < 1.5 Ni Rest	Rp0,2 > 400 MPa Rm > 700 MPa A > 30 % Kv > 90 J	-	68	TÜV	Rods and wires for joining and build-up welding of highly-corrosion resistant NiCrMo alloys (C4).	2.4610 ∘ NiMo16Cr16Ti 2.4819 ∘ NiMo16Cr15W
722 Kb* 2.4638 DIN 1736 : EL-NiCr21Mo14W EN ISO 14 172 E Ni 6022 (NiCr21Mo13W3) AWS A5.11 : E NiCrMo-10	SMAW	C < 0.02 Si < 0.2 Mo 13.5 Cr 21.0 Fe 3.0 Mn 0.8 W 3.0 Ni Rest	Rp0,2 > 450 MPa Rm > 720 MPa A > 30 % Kv > 70 J	-	66	-	Basic coated electrode for welding of base metals, special stainless steels and dissimilar joints.	2.4602 ∘ NiCr21Mo14W
A 722* 2.4635 DIN 1736 : SG-NiCr22Mo14W EN ISO 18 274 : S Ni 6022 (NiCr21Mo13Fe4W3) AWS A5.14 : ER NiCrMo-10	GMAW GTAW	C < 0.01 Si < 0.10 Mn < 0.5 Fe 3.0 Cr 21.0 Mo 13.0 Co < 0,25 Cu < 0.2 W 3.0 Ni Rest	Rp0,2 > 400 MPa Rm > 700MPa A > 30% Kv > 90 J	-	64	-	Rods and wires for welding of base metals and special stainless steels of the same and similar types and also dissimilar joints.	2.4602 ∘ NiCr21Mo14W
759 Kb 2.4609 DIN 1736 : EL-NiCr22Mo16 EN ISO 18 274 : E Ni 6059 (NiCr23Mo16) AWS A5.14 : E NiCrMo-13	SMAW	C < 0.02 Si < 0.2 Mo 15.5 Fe 1.0 Cr 22,5 Mn 0.5 Ni Rest	Rp0,2 > 450 MPa Rm > 720 MPa A > 30 % Kv > 75 J	-	74	TÜV	Basic coated NiCrMo electrode for use in joining and build-up welding of materials where the highest corrosion-resistance properties are required.	2.4605 ∘ NiCr23Mo16Al ∘ Alloy 59 2.4602 ∘ NiCr21Mo14W ∘ Alloy C 22 2.4610 ∘ NiCr16CrMo16Ti ∘ Alloy C 4 2.4819 ∘ NiMo16Cr15W ∘ Alloy C 276 1.4565 ∘ X3 CrNiMnMoNbN 23 17 5 3
A 759 2.4607 DIN 1736 : SG-NiCr23Mo16 EN ISO 18 274 : S Ni 6059 (NiCr23Mo16) AWS A5.14 : ER NiCrMo-13	GMAW GTAW	C < 0.01 Si < 0.1 Mn 0.5 Cr 22.5 Mo 15.5 Fe < 1.0 Ni Rest	Rp0,2 > 450 MPa Rm > 720 MPa A > 30 % Kv > 100 J	-	74	TÜV	Rods and wires for welding of components in chemical process plant with highly-corrosive media.	2.4602 ∘ NiCr21Mo14W 2.4605 ∘ NiCr23Mo16Al 2.4610 ∘ NiMo16Cr16Ti 2.4819 ∘ NiMo16Cr15W
776 Kb 2.4887 DIN 1736 : EL-NiMo15Cr15W EN ISO 14 172 : E Ni 6276 (NiCr15Mo15Fe6W4) AWS A5.11 : E NiCrMo-4	SMAW	C < 0.02 Si < 0.2 Mo 16.5 Cr 16.5 Fe 5.0 Mn 0.6 W 4.0 Ni Rest	Rp0,2 > 450 MPa Rm > 720 MPa A > 30 % Kv > 70 J	-	71	TÜV	Basic coated electrode for high corrosion resistant NiCrMo alloys, e.g. C-276	2.4819 ∘ NiMo16Cr15W

* available on request

CHEMICAL INDUSTRY

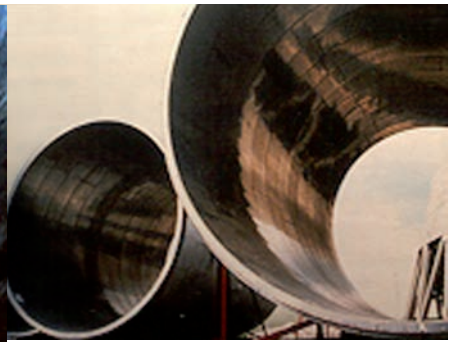
UTP welding consumables for the chemical equipment construction

UTP-Typ Material No. DIN EN AWS	Welding process	Weld metal analysis	Mechanical properties of the pure weld deposite	Operation temperature	Coefficient of efficiency Cr+3.3x Mo+16xN	Approvals	Application field	Basic Material No.
A 776 2.4886 DIN 1736 : SG-NiMo16Cr16W EN ISO 18 274 : S Ni 6276 (NiCr15Mo16Fe6W4) AWS A5.14 : ER NiCrMo-4	GMAW GTAW	C < 0.01 Si 0.1 Cr 16.0 Mo 16.0 W 3.5 Fe 6.0 V 0.2 Ni Rest	Rp0,2 > 450 MPa Rm > 750 MPa A > 30 % Kv > 90 J	-	71	TÜV	Rods and wires for joint welding of base materials of a similar type and build-up welding on low-alloy steels.	2.4819 ∘ NiMo16Cr15W
703 Kb* 2.4616 DIN 1736 : EL-NiMo29 EN ISO 14 172 : Ni 1066 (NiMo 28) AWS A5.11 : E NiMo-7	SMAW	C < 0.02 Si < 0.2 Mo 27.0 Fe 1.0 Mn 0.5 Ni Rest	Rp0,2 > 480 MPa Rm > 760 MPa A > 30 % Kv > 100 J	-	89	-	Basic coated NiMo electrode for welding of metals where highest corrosion resistance characteristics are required.	2.4617 ∘ NiMo28
A 703 2.4615 DIN 1736 : SG-NiMo27 EN ISO 18 274 : S Ni 1066 (NiMo28) AWS A5.14 : ER NiMo-7	GMAW GTAW	C < 0.01 Si < 0.1 Mo 28.0 Fe < 2.0 Ni Rest	Rp0,2 > 480 MPa Rm > 760 MPa A > 30 % Kv > 80 J	-	92	TÜV	Rods and wires for joint welding of metals of the same types and build-up welding on low-alloy steels.	2.4617 ∘ NiMo28
6202 Mo* DIN 1736 : EL-NiMo28Cr (mod.) EN ISO 14 172 : E Ni 1069 (NiMo 28 Fe 4 Cr)	SMAW	C 0.01 Si 0.2 Mo 27.5 Cr 1.0 Fe 3.0 Mn 0.5 Ni Rest	Rp0,2 > 450 MPa Rm > 700 MPa A > 30 % Kv > 80 J	-	92	-	Basic coated NiMo electrode for highest corrosions standards.	2.4600 ∘ NiMo29Cr 2.4617 ∘ NiMo28
A 6202 Mo 2.4701 DIN 1736 : SG-NiMo28Cr EN ISO 18 274 : S Ni 1069 (NiMo 28 Fe 4 Cr)	GMAW GTAW	C 0.01 Si 0.05 Mn 1.0 Cr 1.0 Fe 3.5 Ni > 65,0 Mo 28.0	Rp0,2 > 450 MPa Rm > 750 MPa A > 30 % Kv > 80 J	-		TÜV	Rods and wires for joint welding of metals of the same type or other NiMo alloys with similar chemical composition.	2.4600 ∘ NiMo29Cr 2.4617 ∘ NiMo28
4225* 2.4652 DIN 1736 : EL-NiCr 26 Mo EN ISO 14 172 : E Ni 8165 (NiCrFe30Mo)	SMAW	C < 0.03 Si 0.4 Mo 6.0 Cr 26.0 Ni 40.0 Mn 2.5 Cu 1.8 Fe Rest	Rp0,2 > 350 MPa Rm > 550 MPa A > 30 % Kv > 80 J	-	46	TÜV	Basic coated electrode for joining and build-up welding of similar alloys.	2.4858 ∘ NiCr21Mo 2.4642 ∘ NiCrMo6Cu 1.4563 ∘ X1 NiCrMoCuN 31 27 4 1.4539 ∘ X1 CrNiMoCuN 25 20 5
A 4225* 2.4655 DIN 1736 : SG-NiCr27Mo EN ISO 18 274 : S Ni 8125 (NiFe26Cr25Mo)	GMAW GTAW	C < 0.02 Si < 0.3 Mn 2.5 Cr 25.5 Ni 41.0 Mo 5.0 Cu 2.0 Fe Rest	Rp0,2 > 360 MPa Rm > 560 MPa A > 30 % Kv > 100J	-	42	TÜV	High nickel containing and corrosion resistant rods and wires for joining and build-up welding of alloys of the same type.	1.4500 ∘ G- X 7 NiCrMoCuNb 25 20 1.4529 ∘ X 1 NiCrMoCuN 25 20 6 1.4539 X 1 NiCrMoCuN 25 20 5 1.4563 ∘ X 1 NiCrMoCuN 31 27 4 2.4619 ∘ NiCr22Mo7Cu 2.4858 ∘ NiCr21Mo

* available on request

UTP welding consumables for the chemical equipment construction

UTP-Typ Material No. DIN EN AWS	Welding process	Weld metal analysis	Mechanical properties of the pure weld deposite	Operation temperature	Coefficient of efficiency Cr+3.3x Mo+16xN	Approvals	Application field	Basic Material No.
3127 LC ~ 1.4563 DIN 1736 : E 27 31 4 Cu LR AWS A5.4: E 383-16	SMAW	C < 0.03 Si < 0.9 Mo 3.5 Cr 27.0 Ni 31.0 Mn 1.5 Cu 1.3 Fe Rest	Rp0,2 > 350 MPa Rm > 600 MPa A > 30 % Kv > 80 J	-	39	TÜV	Low-carbon, fully austenitic as mixed type coated electrode with high corrosion resistance for joining and build-up welding of the same and similar types of alloys.	1.4500 ∘ G-X7 NiCrMoCuNb 25 20 1.4505 ∘ X5 NiCrMoCuNb 20 18 1.4506 ∘ X5 NiCrMoCuTi 20 18 1.4539 ∘ X2 NiCrMoCu 25 20 5 1.4563 ∘ X1 NiCrMoCu 31 27
A 3127 LC 1.4563 DIN EN 12072 : W/G 27 31 4 Cu L AWS A5.9 : ER 383	GMAW GTAW	C < 0.02 Si < 0.2 Mn 1.5 Cr 27.0 Ni 31.0 Mo 3.5 Cu 1.0 Fe Rest	Rp0,2 > 350 MPa Rm > 540 MPa A > 30 % Kv > 80 J	-	39	TÜV	Fully-austenitic rods and wires for joining and build-up welding of the same and similar types of base materials.	1.4550 ∘ G- X 7 NiCrMoCuNb 25.20 1.4505 ∘ X 5 NiCrMoCuNb 20 18 1.4506 ∘ X 5 NiCrMoCuTi 20 18 1.4539 ∘ X 2 NiCrMoCu 25 20 5 1.4563 ∘ X 1 NiCrMoCu 31 37
2522 Mo EN 1600 : E 25 22 2 N LB 4 2 DIN 8556 : E 25 22 L Mn B 20+	SMAW	C 0.03 Si 0.25 Mo 2.5 Cr 25.0 Ni 22.0 Mn 5.5 N 0.15	Rp0,2 400 MPa Rm 620 MPa A 30 % Kv 80 J	-	36	-	Basic coated electrode for joining and surfacing of high corrosion resistant CrNiMo steels and cast steels.	1.4465 ∘ X1 CrNiMoN 25 25 2 1.4577 ∘ X3 CrNiMoTi 25 25
A 2522 Mo DIN 8556 : SGX2 CrNiMoN 25 22 2 EN 12 072 : G(W) 25 22 2 N L	GMAW GTAW	C 0.02 Si 0.3 Mn 5.0 Cr 25.0 Ni 21.5 Mo 2.5 N 0.15	Rp0,2 420 MPa Rm 620 MPa A 30 % Kv 80 J	-	36	TÜV	Rods and wires for joining and surfacing corrosion resistant CrNiMo steels. Particularly suited for area and nitric acid plants.	1.4465 ∘ X 1 CrNiMoN 25 25 2 1.4577 ∘ X 3 CrNiMoTi 25 25



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)

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If it can be welded – we know how.

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