




# Spiral Welded Pipes

 U. S. Steel Košice

[www.uske.sk](http://www.uske.sk)







# Steel production

## ○ Introduction

U. S. Steel Košice is the largest producer of flat rolled products in Central Europe. Integrated steel producer located in Eastern Slovakia, represents a successful partnership of Slovak technical skills and knowledge with strong American plant management and market-oriented business experience. In November 2000 the ownership of the complete metallurgical operation of the East Slovakian Steelworks was successfully transferred to the U. S. Steel Group, then a unit of the USX Corporation (now the United States Steel Corporation).

U. S. Steel Košice embarked on an ambitious program of capital investment and improvement in customer service, product quality and environmental performance.

A responsible approach to business is fundamental and a permanent principle of U. S. Steel Košice which is a leading contributor to the economic, environmental, and social development of Košice and Eastern Slovakia.

## ○ Production program

The company's production program consist of a wide assortment of hot rolled, cold rolled and coated products including hot-dip galvanized, color coated, tinplate and isotropic non-grain oriented sheets. Apart from these flat rolled products, U. S. Steel Košice also produces spiral welded pipes and steel panel radiators/KORAD brand. The company provides complex technical advisory services consisting of:

- Research and Development
- Customer Technical Service/CTS
- Marketing and Commercial Services

U. S. Steel Košice has implemented and maintains all significant worldwide quality control systems.

## ○ Certificates and Awards

U. S. Steel Košice's commitment to customer satisfaction includes maintaining the highest quality standards in the industry. U. S. Steel Košice has implemented and applies an effective Quality Management System according to EN ISO 9001, ISO/TS 16949, Environmental Management System according to EN ISO 14001, corporate Occupational Safety and Health Management System and Energy Management System according to EN ISO 50001. U. S. Steel Košice received the "2003 Award for Corporate Excellence" granted by the Department of Foreign Affairs of the United States of America for extraordinary entrepreneurial practices, innovations, quality and integrity of the company.



Slovakia



Management Service



0002646



Germanischer Lloyd





# Pipe production

## ○ Production program

U. S. Steel Košice is producing SAWH (Submerged arc welding helical) spiral pipes on two welding lines with annual production capacity 80.000-100.000 tons per year. Spiral welded steel pipes are made of low carbon as well as micro alloyed HSLA steel from hot rolled substrate produced at U. S. Steel Kosice.

U. S. Steel Košice produces pipes in sizes ranging from 406 mm to 1422 mm outside diameter, wall thickness from 5,0 mm to 12,7 (14,2\*) mm and length from 8 m to 18 m.

The pipes are delivered in accordance with EN, DIN and API standards or in accordance with agreed terms or standards.

Pipe production has a long tradition with the first spiral welded pipe manufactured in 1960 as the first product produced at the plant. For almost 50 years we have supplied most European countries and the countries of the former Soviet Union. The main sectors supplied include pipes for the transport of gas, oil and water as well as pipes for the construction markets.

## ○ Testing

Each pipe undergoes a series of non-destructive tests: ultrasonic test, X-ray test, pressure test and visual inspection of surface and outside and inside weld of the pipe. All results are recorded and archived.

## ○ Certificates and Quality Control System

The production process is certified according to EN ISO 9001; EN ISO 14001; API Spec.Q1 standards by American Petroleum Institute. In addition, the high quality of our pipes has been confirmed by following product certificates:

- Certification of Quality Assurance System for Material Manufacturer acc. to Directive 97/23/EC and AD 2000-Merkblatt W0
- Certification of Factory Production Control according to EN 10219-1 for Structural Sections
- Certification of Conformity with EN ISO 3834
- Certification of Conformity with Act No. 264/1999 Coll. and Act No.90/1998 Coll. (Slovak legislation)
- Certification of Conformity for Ukrainian and Polish market
- Certification of Manufacturer Authorization issued by UDT (Urząd Dozoru Technicznego)

## ○ Basic Dimension

Dimensions [mm]	minimum	maximum
diameter	406	1 422
wall thickness	5,0	12,7 (14,2*)
standard lengths	8 m	18 m

## ○ Principal Fields of Application

- Gas distribution pipelines
- Crude oil pipelines
- Hot water conduits
- Potable water distribution
- Sewage conduits
- Civil engineering and structural purposes

\* subject to prior agreement









## SPIRAL WELDED PIPES IN ACCORDANCE WITH EN

STANDARD	GRADE	APPLICATION
EN 10217-1	P 235 TR1, P 235 TR2 P 265 TR1, P 265 TR2	Steel pipes for high pressure purposes. Technical conditions of supply. Part 1: Non-alloyed steel pipes with specific properties under surrounding environment temperature
EN 10217-3	P 355 N P 355 NH	Steel pipes for high pressure purposes. Technical conditions of supply. Part 3: Alloyed steel pipes of fine grained steel
EN 10217-5	P 235 GH P 265 GH	Steel pipes for high pressure purposes. Technical conditions of supply. Part 5: Non-alloyed and alloyed steel pipes welded under flux with specific properties under higher temperature
EN 10224	L 235, L 275, L 355	Non-alloyed steel pipes and shaped pieces for transport of liquids, drinking water inclusive. Technical conditions of supply.
EN 10219-1,2	S 235 JRH, S 275 JOH, S 275 J2H S 355 JOH, S 355 J2H	Welded hollow sections made of non-alloyed and fine-grained cold-formed steel. Part 1: Technical conditions of supply. Part 2: Tolerances, dimensions and cross-sections properties.
ISO 3183 PSL1	L 245-B, L 290-X42, L 320-X46 L 360-X52, L 390-X56, L 415-X60, L 450-X65, L 485-X70	Petroleum and gas industry. Steel pipes for pipeline transport system
ISO 3183 PSL2	L 245M-BM, L 290M-X42M, L 320M-X46M, L 360M-X52M, L 390M-X56M, L 415M-X60M, L 450M-X65M, L 485M-X70M	Petroleum and gas industry Steel pipes for pipeline transport system
ISO 3183 PSL2	L 245ME-BME, L 290ME-X42ME L 360ME-X52ME, L 415ME-X60ME, L 450ME-X65ME, L 485ME-X70ME	Petroleum and gas industry-Steel pipes for pipeline transport system Appendix M - Steel Pipes PSL2 ordered for european inland gas lines assigned for natural gas transport
API SPEC.5L PSL1	L 245-B, L 290-X42, L 320-X46 L 360-X52, L 390-X56, L 415-X60, L 450-X65, L 485-X70	Pipes Specification API Spec. 5L
API SPEC.5L PSL2	L 245M-BM, L 290M-X42M, L 320M-X46M L 360M-X52M, L 390M-X56M, L 415M-X60M, L 450M-X65M, L 485M-X70M	Pipes Specification API Spec. 5L
EN 10208-1	L 235 GA, L 245 GA, L 290 GA, L 360 GA	Steel pipes for pipelines for combustible fluids. Technical delivery conditions. Part 1: Pipes of requirement class A
EN 10208-2	L 245MB, L 290MB, L 360MB, L 415MB, L 450MB, L 485MB	Steel pipes for pipelines for combustible fluids. Technical delivery conditions. Part 2: Pipes of requirement class B
DIN 1626	St 37.0, St 44.0, St 52.0	pipelines, vessels, engineering purposes - at operational temperature up to 300°C and upper yield stress to 6,4 Mpa (depending on diameter and wall thickness)
DIN 1628	St 37.4, St 44.4, St 52.4	pipelines, vessels, engineering purposes - at operational temperature up to 300°C and the highest allowed operational pressure unlimited

## SPIRAL WELDED PIPES IN ACCORDANCE WITH RELEVANT STANDARDS

L235GA/BM PSL2/L 245M PSL 2/P235TR 2/P235GH/S235JRH.	EN 10208-1/API SPEC.5L/ISO 3183/EN 10217-1/EN 10217-5/EN 10219-1,2
St 37.0/BM PSL2/L 245M PSL2/P235TR2/P235GH/S235JRH.	DIN 1626/API SPEC.5L/ISO 3183/EN 10217-1/EN 10217-5/EN 10219-1,2
L235GA/P235TR2/P235GH/S235JRH.	EN 10208-1/EN 10217-1/EN 10217-5/EN 10219-1,2
St 37.0/P235TR2/P235GH/S235JRH.	DIN 1626/EN 10217-1/EN 10217-5/EN 10219-1,2
St 52.0/S 355 J2H/X 52 PSL1/L 360 PSL1	DIN 1626/EN 10219-1,2/API SPEC.5L/ISO 3183
St 52.0/S 355 J2H	DIN 1626/EN 10219-1,2



## SPIRAL WELDED DIMENSIONS AND WEIGHTS EN 10 220

OUTSIDE DIAMETER		Wall thickness												
(mm)	(inch)	5,00	5,60	6,30	7,10	8,00	8,80	9,50	10,00	11,00	12,00	12,50	12,70	14,2*
(mm)	(inch)	0,197	0,220	0,248	0,280	0,315	0,346	0,374	0,394	0,433	0,472	0,492	0,500	0,559
406,4	16	49,5	55,4	62,2	69,9	78,6	86,3	93,0						
426		51,9	58,1	65,2	73,3	82,5	90,5	97,6	103	113	123	127	129	
457	18	55,7	62,3	70,0	78,8	88,6	97,3	105	110	121	132	137	139	
508	20	62,0	69,4	77,9	87,7	98,6	108	117	123	135	147	153	155	
530		64,7	72,4	81,4	91,6	103	113	122	128	141	153	160	162	
559	22	68,3	76,4	85,9	96,6	109	119	129	135	149	162	168	171	
610	24	74,6	83,5	93,8	106	119	130	141	148	162	177	184	187	
630		77,1	86,2	96,9	109	123	135	145	153	168	183	190	193	
660	26	80,8	90,4	102	114	129	141	152	160	176	192	200	203	
711	28	87,1	97,4	109	123	139	152	164	173	190	207	215	219	
720		88,2	98,7	111	125	140	154	166	175	192	210	218	222	
762	30	93,3	104	117	132	149	163	176	185	204	222	231	235	
813	32	99,6	112	125	141	159	175	188	198	218	237	247	251	280
864				133	150	169	186	200	211	231	252	262	267	298
914	36			141	159	179	196	212	223	245	267	278	282	315
965	38			149	168	189	208	224	236	259	282	294	298	333
1 016	40			157	177	199	219	236	248	273	297	309	314	351
1 020				157	177	200	219	237	249	274	298	311	315	352
1 067					186	209	230	248	261	286	312	325	330	369
1 118	44				195	219	241	260	273	300	327	341	346	387
1 120					195	219	241	260	274	301	328	341	347	387
1 219	48					239	263	283	298	328	357	372	378	422
1 220						239	263	284	298	328	357	372	378	422
1 320						259	285	307	323	355	387	403	409	457
1 321	52					259	285	307	323	355	387	403	410	458
1 420						279	306	330	348	382	417	434	441	492
1 422	56					279	307	331	348	383	417	435	441	493

NOTE: avg < 508 mm delivered only in grade with Re ≤ 355 MPa  
\* subject to prior agreement

Weight [in kg/m]

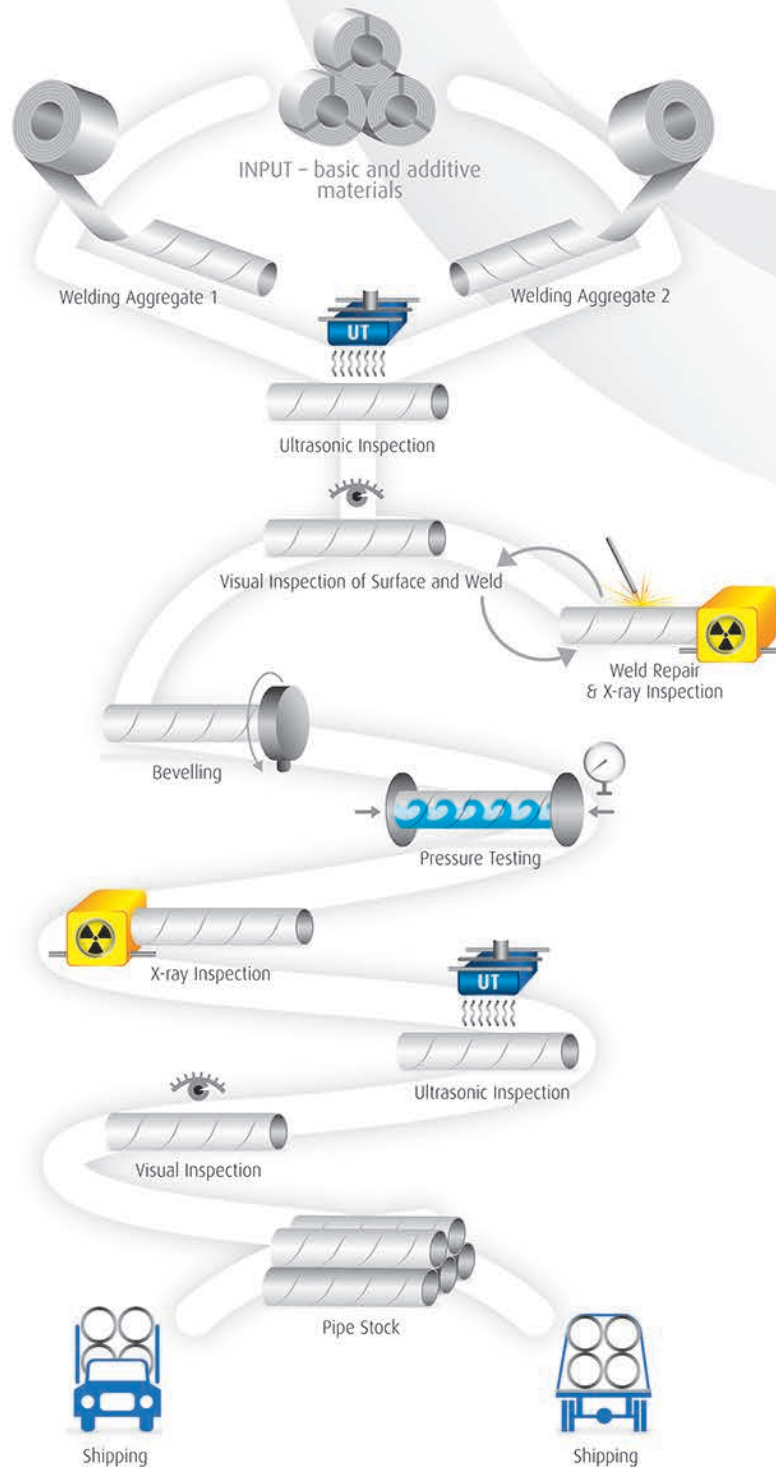








## Production Workflow



### Delivery Conditions

The final products are shipped to the customers via truck or railway transportation directly from our storage yard. The pipes are controlled by Technical Inspection employees before shipment. We declare conformity of our products with requirements stated in the orders in accordance with EN 10 204.

### Pipe End Protection

Trimmed pipe ends might be provided with protective caps upon the customer's requirements.

### Surface Protection

Pipes are delivered without surface treatment. Surface insulation provided by a third party is subject to prior agreement

### Special Requirements

Any special requirements exceeding the above standards are to be agreed upon before concluding the contract.



## REFERENCES

Year	Customer Projekt	DN [mm] Standard	Lenght [km]
2004	<b>Socologstor S.p.A.</b> , Italy Winter Olympic Games 06 - Olympic village heating	610-813 St 37.0	20,3
2004	<b>Alstom Power Flowsystems</b> , Poland, Ukraine Heating project Kiev /III. stage/	813; 1220 St 37.0	11,0
2004	<b>Commissionaria Alfa S.A.</b> Switzerland, Italy Water pipeline, project Monferrato	711 St 52.0	6,1
2004	<b>Alstom Power Flowsystems</b> , Denmark, Greece District Heating Kozani	610 St 37.0	13,4
2004 - 2005	<b>Ferrometal Holdings</b> , Poland Gas pipeline, project Petrochem - Megagaz	813 L 450 MB	105,9
2004 - 2005	<b>Uniset Rury Stalowe</b> Poland Water pipeline, project power plant Belchatow	1220 PN-79/H74244-B2	18,8
2006	<b>Klöckner Rohr-center</b> Germany, Ireland Water pipeline /part II./	1220 St 37.0 1 220	18,0
2006	<b>Van Leeuwen Buizen</b> France, Algeria Project desTorches à Haasl, Sonatrach	457-1067 API spec 5L / Grade B	21,5
2007	<b>Uniset Rury Stalowe</b> Poland Gas pipeline -project Czestochowa	508 L 415 MB	11,7
2007	<b>Ratio Commerce Metal Trade GmbH</b> Slovenia pier construction, Koper	813 S 275 J2H 813	9,3
2007	<b>Logstor Finsko Oy</b> , Finland District heating, project Hyvinkaa - Riihimäki	508 P 235 GH TC1	14,2
2007	<b>Klöckner Rohr-center</b> , Germany, Ireland Water pipeline /part II./	1220 St 37.0	8,7
2007	<b>ODS Klöckner &amp; Co.</b> , Netherland Water pipeline project Brabant	610-1016 St 37.1	6,5
2007	<b>D'Amore &amp; Lunardi</b> , Italy Project SNAM Rete Gas	914 X 60 PSL1	6,0
2007	<b>D'Amore &amp; Lunardi</b> Italy Project SNAM Rete Gas	559-813 St 52.0	12,6
2007	<b>Stahlrohr</b> Germany, Island Water pipeline	711 - 1420 St 37.0	4,6
2007	<b>Interfer Rohrunion GmbH</b> Germany Water pipeline project RWE	1220 P 235 TR1	9,6
2007	<b>Logstor</b> Denmark, Sweden District heating, project Malmö	711 - 813 L 415 MB	15,3
2007-2008	<b>Ferrometal Holdings</b> Cyprus, Poland Gas pipeline Wroclawek - Gdynia	508 L 415 MB	11,5
2007-2008	<b>Logstor</b> Denmark, Sweden District Heating, project Kalmar	610 P 235 GH TC1	24,0
2007-2008	<b>D'Amore &amp; Lunardi s.p.a.</b> Italy Pilling, port La Spezia	914 St 52.0	9,5
2008	<b>Logstor Ror</b> Poland, Denmark, Island Power plant, project Island	914 - 1 016 P 235 GH TC1	10,1
2008	<b>Van Leeuwen Buizen</b> Netherland Project Evides	1220 St 37.0	17,0
2008	<b>Interfer Rohrunion</b> Germany, Netherland Gas pipeline Boholz - Haaren, project RWE	508 L 485 MB	9,1





2008-2009	<b>Eustream / SPP Distribution</b> Slovakia Gas pipeline Velké Kapušany, Slanec	711 L415MB	6,0
2008-2009	<b>Interfer</b> Germany Water pipeline, RWE project Hambach/Garzweiler	610-1420 P235TR1	19,6
2008-2009	<b>Logstor</b> District Heating, project Jyvaskyla/Finland	610 ; 813 P235GH TC	11,2
2008	<b>Racio Metal Trade</b> , Slovenia Pier construction Koper	813 S355J2H	17,8
2009	<b>Racio Metal Trade</b> , Slovenia Pier construction Koper	813 S355J2H	31,4
2009	<b>Frazer &amp; Taberner</b> UK Water pipeline, project West East Main	1219 L275	18,9
2009	<b>D Amore Sud</b> Italy Water pipe line for Foggia City	1219 L275	5,5
2009	<b>SC Metal Distribution</b> Romania Gas pipeline	406 L360MB	20,7
2009	<b>GazSystem</b> Poland Gas pipeline	0 L415MB	17,6
2010	<b>Askony</b> Slovakia Water pipeline Ukraine	1220 S137.0	1,6
2010	<b>Brodrene Dahl</b> Norway Piling project	1016; 1220 S355J2H	3,6
2010	<b>Hebra</b> Norway Fish farm	813 - 1220 S355J2H	4,1
2010	<b>Steeltubes</b> , Poland Highway A1 and A4	406-1420	4,0
2010	<b>Izostal Poland</b> , Slovakia Gas pipeline, Eustream/SPP distribution	711 L415MB	10,5
2010	<b>ThyssenKrupp Energostahl</b> Poland Pillings - Port Gdynia	406 S355J2H	7,1
2010	<b>GazSystem</b> Poland Gas pipeline	508 L485MB	44,3
2011	<b>GazSystem</b> Poland Gas pipeline	508, 711 L485MB	80,7
2012	<b>Logstor</b> Poland District Heating, project Rotterdam	508 P355NH	35,5
2012	<b>Interfer</b> Germany RWE Power/Rheinbraun	610 L235	3,2
2012	<b>Interfer</b> Germany Berliner Water project	1016 L235	2,2
2012	<b>GazSystem</b> Poland Gas pipeline	508, 711 L485MB	51,6
2013	<b>GazSystem</b> Poland Gas pipeline	711 L485MB	62,7
2013	<b>Logstor</b> Poland District Heating, project Kosovo	610 P235GH	22,6
2013	<b>SC Comtech</b> Romania Gas pipeline	508 X60PSL2	6,5
2013	<b>Interfer</b> Germany Project ARGE Emden	610 S235JRH	5,0





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