



EXPERT PIPE SOLUTIONS. BEARING TUBES



CONTENT

1	About Interpipe	Global steel pipe producer and supplier	4
2	Interpipe Steel	In-house green steel production	5
3	Expert pipe solutions for mechanical engineering		6
4	Bearing tubes		7
4.1		Hot-rolled bearing tubes	7
4.2		Cold-drawn bearing tubes	8

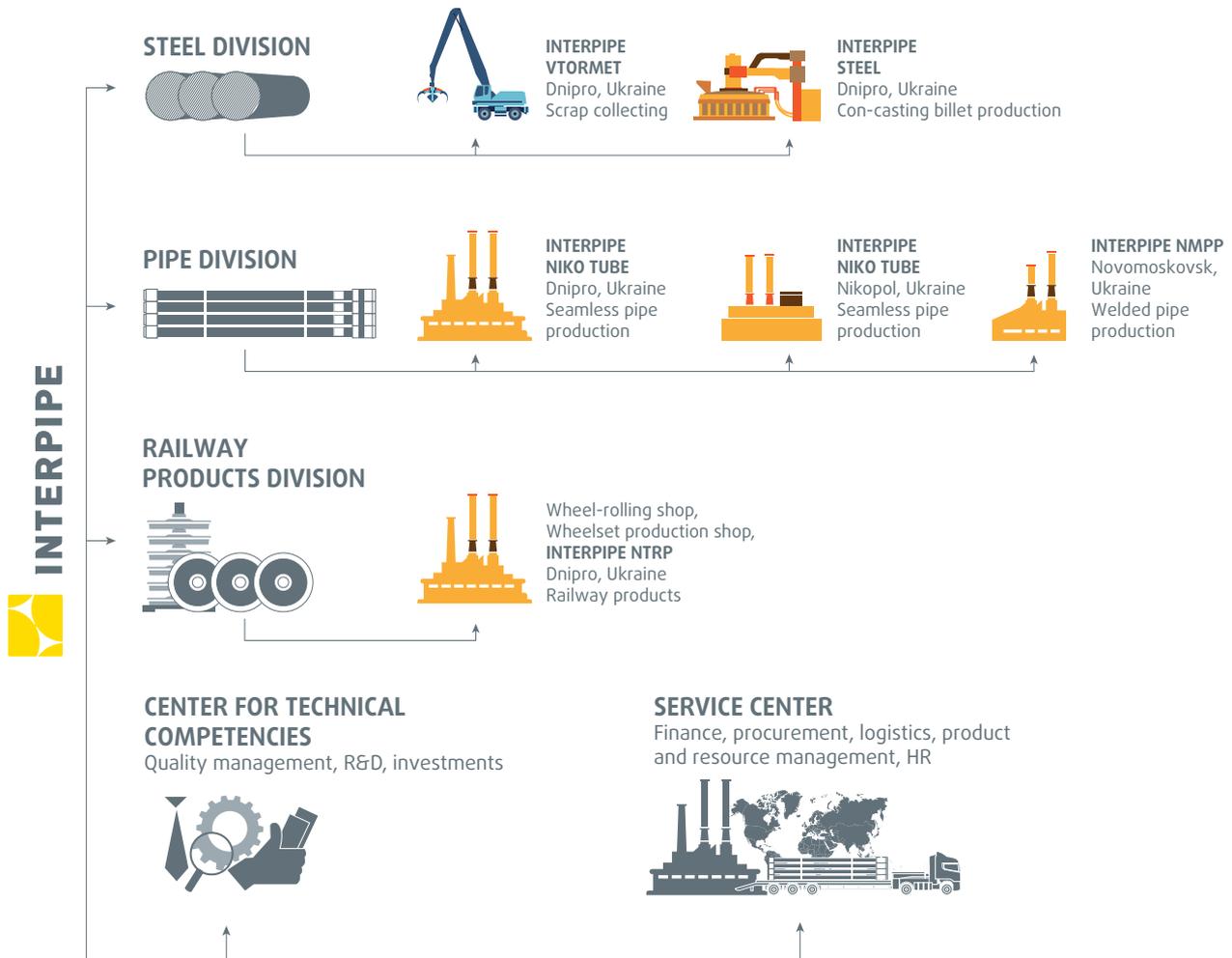
INTERPIPE IS A GLOBAL STEEL PIPE PRODUCER AND SUPPLIER

Interpipe is a global steel pipe producer for all major application – oil & gas exploration and transportation, power generation, mechanical and structural use.

The company’s products are supplied to 80 countries all over the world through a chain of commercial offices located in Ukraine, Europe, the USA and the Middle East.

Interpipe structure includes production facilities located in Dnipro region, one of the major industrial centers of Ukraine. The company continues to invest heavily in the development and modernization of its mills.

Interpipe includes 3 operating divisions – Steel, Pipe and Railway Products. The company controls product quality at every stage: from manufacturing of raw materials to delivery of final products to customers.



SELLING TO CUSTOMERS GLOBALLY – KEY MARKETS



INTERPIPE STEEL: IN-HOUSE GREEN STEEL PRODUCTION

INTERPIPE COMPANY NEEDS FOR STEEL BILLETS IS 100% COVERED BY OWN FACILITIES – INTERPIPE STEEL PLANT. INTERPIPE STEEL – IS AN INNOVATIVE EAF COMPLEX, LAUNCHED IN 2012 WITH BEST AVAILABLE TECHNOLOGIES FROM DANIELI.

A few years before the European Green Deal emerged, Interpipe made the largest environmental investment in the Ukrainian industry, investing \$1 billion into the construction of the innovative electric steel-making complex Interpipe Steel. It enabled Interpipe to achieve one of the lowest greenhouse gas emission intensity in the global steel industry – lower than 200 kg per ton of steel billets – that reflects low carbon nature of Interpipe production.



LOW CARBON FOOTPRINT

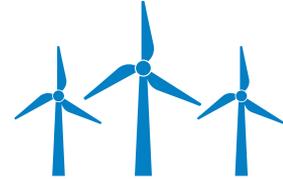
<110 kg/ton of steel (Scope 1)

<230 kg/ton of steel (Scope 2)



RECYCLING DEVELOPMENT

100% of steel produced from scrap



CLEAN ENERGY USAGE

Over 62% of energy comes from environmentally sustainable sources

INNOVATIVE DANIELI TECHNOLOGIES AT INTERPIPE STEEL ENABLES TO PRODUCE 1,320,000 TONS OF STEEL BILLET ANNUALLY

Electric arc furnace, 160 tons	Twin tank vacuum-degasser
Twin position ladle furnace	Two continuous casting machines

INTERPIPE STEEL IS THE LARGEST “GREEN” INVESTMENT INTO UKRAINIAN STEEL INDUSTRY DURING THE LAST 30 YEARS

State-of-the-art gas collection and purification system allows the efficient collection of gas and dust, generated during the steel-melting process

Completely closed circulating water supply system of the mill, without any industrial wastewater discharge

INTERPIPE STEEL ENSURES 100% NEEDS IN STEEL BILLETS FOR RAILWAY PRODUCTS MANUFACTURING. THE MILL HAS DEVELOPED WIDE PRODUCT PORTFOLIO OF PIPE STEEL GRADES FOR INTERPIPE CUSTOMERS.



EXPERT PIPE SOLUTIONS FOR MECHANICAL ENGINEERING

Our product strategy in the mechanical pipes sector is defined by a thorough market analysis and investigation of our clients' needs in the automotive, shipbuilding and power generation industries.

The company produces machinery use products as basic elements for the manufacture of vehicles of different configurations, hydraulic cylinders, bearings, axles, mining equipment and high-precision parts of aeronautical engineering and cars.

Basic car components for vehicles are manufactured from our products

Interpipe tubes perfectly meet the requirements of the advanced automotive industry. The close tolerances of steel tubes in diameter and thickness, exceptional concentricity and a smooth finish, both inside and outside, facilitate engineers' obtainment of uniform flow under controlled temperature and pressure. Its excellent low temperature properties ensure smooth hardening in the process of cold working.

Interpipe produces a wide range of hot-rolled and cold-rolled tubes for bearings manufacture. Chemical composition ensures high mechanical properties of our products.



BEARING TUBES

Chemical composition

100Cr6									
C	Si	Mn	Cr	P	S	Mo	Cu	Al	
0.93-	0.15-	0.25-	1.35	Not more than					
1.05	0.35	0.45	1.60	0.025	0.015	0.10	0.30	0.050	
Tolerances - C +/-0.03%, Si +/-0.03%, Mn +/-0.04%, P,S +0.005%, Cr +/-0.05%, Mo +/-0.03%, Al +0.010%, Cu +0.03%, O - max 0.0015%.									

Macro-inclusions

The content of macro-inclusions shall not exceed a length of 2.5 mm per dm² as measured by the blue fracture test. The maximum length for a single inclusion shall not exceed 3 mm.

Micro-inclusions

Heat check according to ISO 4967:1998 (E), Method A.

The micro-inclusion rating can be made on the sample of bar with a reduction ratio of minimum 1:10 or maximum 1:60 for continuously cast material.

The micro-inclusion rating shall not exceed the limits specified below.

Inclusion type	Thin	Heavy
A	2.0	1.5
B	1.5	0.5
C	0.0	0.0
D	1.0	0.5
DS		1.5

Microstructure

In accordance to SEP 1520

Pearlite amount

PA ≤ 3.0.

Carbide size

2.1 to 2.3.

Carbide network

4.2 or 5.2 maximum respectively

Carbide segregation

6.2 and 7.3 maximum respectively

Hardness

Hot-rolled tubes:

170 - 210 HBS, according to ISO 6506-1:1999

Cold rolled tubes:

250 - 320 HBS, according to ISO 6506-1:1999

Decarburization:

Hot rolled tubes // Pilled external surface

Internal surface - max. 0,5 mm. External surface - 0 mm.

Hot rolled tubes // Not Pilled

Internal surface - max. 0,5 mm. External surface - 0,5 mm.

Cold rolled tubes // Internal surface - max. 0,3 mm External surface - max. 0,4 mm.

Hot rolled tubes size range:

Outside diameter	Wall thickness, mm																					
	8,0-9,0	9,1-10,0	10,1-11,0	11,1-13,0	13,1-15,0	15,1-17,0	17,1-19,0	19,1-21,0	21,1-23,0	23,1-25,0	25,1-27,0	27,1-29,0	29,1-30,0	30,1-31,0	31,1-32,0	32,1-33,0	33,1-34,0	34,1-35,0	35,1-36,0	36,1-37,0	37,1-38,0	
80,1-90,0																						
90,1-100,0																						
100,1-110,0																						
110,1-120,0																						
120,1-130,0																						
130,1-140,0																						
140,1-150,0																						
150,1-160,0																						
160,1-170,0																						
170,1-183,0																						

Cold rolled tubes size range:

Outside diameter	Wall thickness, mm					
	4,5-5,0	5,1-7,0	7,1-9,0	9,1-11,0	11,1-13,0	13,1-15,0
36,0-40						
40,1-50						
50,1-60						
60,1-70						
70,1-81,2						

Note:

Pipes less than 36 mm outside diameter can be produced upon agreement with the mill

Dimensional tolerances

Diameter

Hot rolled filled tubes: $-0/+0,2$ mm

Hot rolled unfilled tubes: $-/+1\%$

Cold rolled tubes: $-0/+0,40$ mm



Wall Thickness

Hot rolled tubes:

Dimension / Wall thickness	Tolerance (mm)
OD/WT < 11	-0/+15%
OD/WT = 11-12,5	-0/+20%
OD/WT > 12,5	-0/+25%

Cold rolled tubes: -0/+12% or to be agreed between customer and producer.

Straightness

Any deviation from a straight line must not exceed 0.001 x the measured length.
The measured length must be minimum 1000 mm.

Out-of-roundness

Maximum 80% of the OD tolerance range.

Protection

Pipes are supplied:

- black and bare
- oiled internally and externally

Upon request pipes ends are protected with plastic caps.

Marking

Pipes are supplied with marking according to standard and customer request.

Marking is paint and/or hard stenciled on the ends of pipes. The same data, as well as additional information per customer's request, is indicated on the bundle's tags.

Certification

Pipes are supplied with 3.1. inspection certificate, in conformity with EN 10204.





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