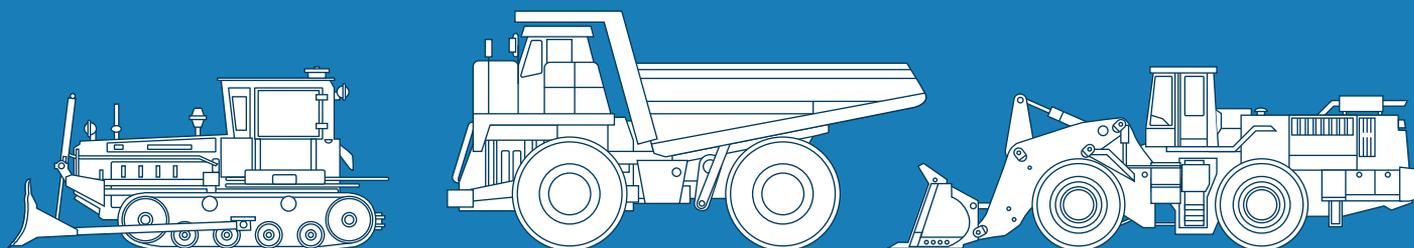




INTERPIPE

# EXPERT PIPE SOLUTIONS FOR PRECISION APPLICATIONS





## CONTENT

|     |   |  |   |
|-----|---|--|---|
| 1   | <b>About Interpipe</b>                                      | Global steel pipe producer and supplier                    | 2 |
| 2   | <b>Interpipe Steel</b>                                      | In-house green steel production                            | 3 |
| 3   | <b>Expert pipe solutions<br/>for mechanical engineering</b> |  | 4 |
| 4   | <b>Precision pipes</b>                                      |  | 5 |
| 4.1 | <b>EN 10305-1</b>   | Seamless cold-drawn steel tubes for precision applications | 5 |
| 4.2 | <b>DIN 2391-1,2</b>   | Seamless precision steel tubes                             | 7 |

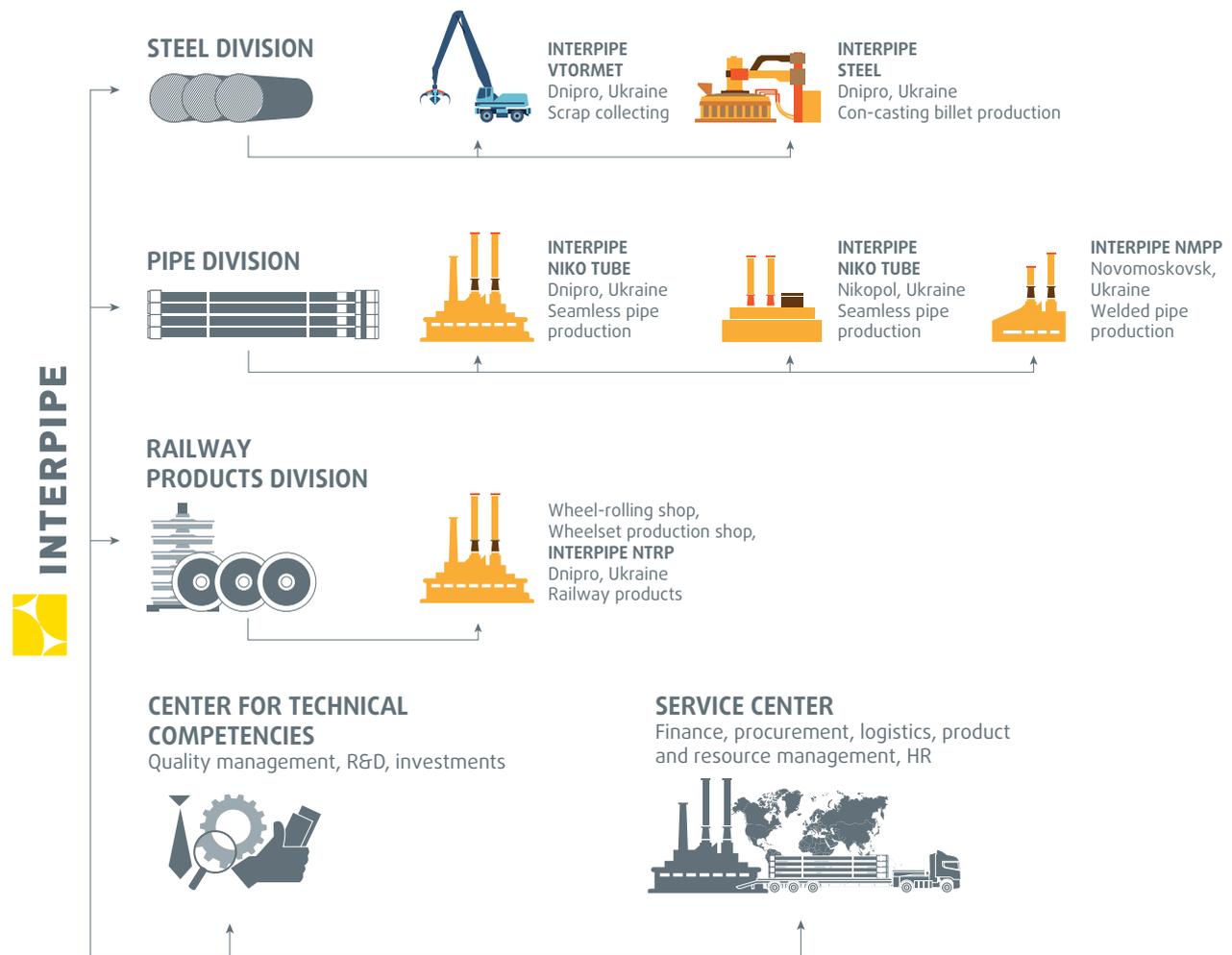
# INTERPIPE IS A GLOBAL STEEL PIPE PRODUCER AND SUPPLIER

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

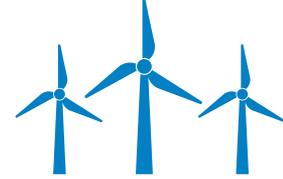
<110 kg/ton of steel (Scope 1)

<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.

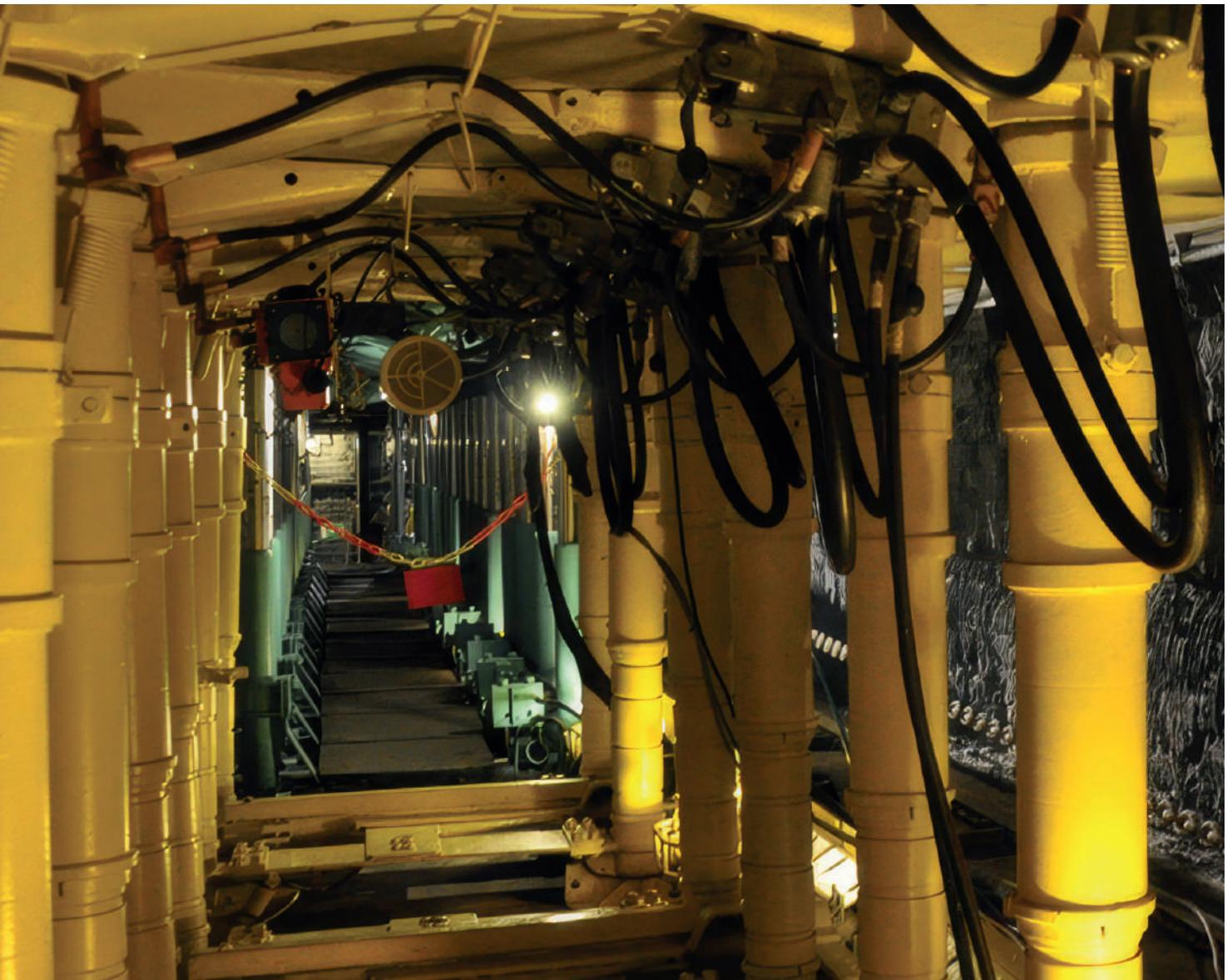
The company produces machinery use products as basic elements for the manufacture of vehicles of different configurations, hydraulic cylinders, bearings, axles, mining equipment and high-precision parts of aeronautical engineering and cars.

### Basic car components for vehicles are manufactured from our products

Tube is a key element of any hydraulic machinery device. Interpipe produces precision seamless cold drawn tubes suitable for the manufacturing of hydraulic cylinders.

The tubes are produced with close tolerances out of easily weldable steel. Such tubes undergo special treatment to guarantee good machinability. Upon the request from our customers tubes may be produced quite close to the finished product dimensions.

Interpipe products are used in mining explorations as powered roof supports and hydraulic pit props. For these applications, Interpipe supplies seamless tubes for engineering purposes, where the critical factors are weight control and high stress resistance. These types of tubes have high-performance steel characteristics, ensured by the heat treatment. Our products are used for applications where the ratio between mass and space occupied is especially critical.



# EN 10305-1 COLD DRAWN SEAMLESS STEEL TUBES FOR HYDRAULIC CYLINDERS

## Dimensional range

| Inside diameter, mm | Wall thickness, mm |   |   |     |   |     |   |     |   |    |    |      |    |
|---------------------|--------------------|---|---|-----|---|-----|---|-----|---|----|----|------|----|
|                     | 4,5                | 5 | 6 | 6,5 | 7 | 7,5 | 8 | 8,5 | 9 | 10 | 11 | 12,5 | 15 |
| 50                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 55                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 60                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 62                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 63                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 65                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 70                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 75                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 80                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 85                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 90                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 95                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 100                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 105                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 110                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 115                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 120                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 125                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 130                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 135                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 140                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 145                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 150                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 160                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |

Special dimensions or intermediate dimensions on request.

The value inside boxes present the OD.

## Dimensional tolerances

| INSIDE DIAMETER TOLERANCE |             |           |           |           |
|---------------------------|-------------|-----------|-----------|-----------|
| -0,25/-0,55               | -0,30/-0,65 | -0,4/-0,7 | -0,5/-0,9 | -0,5/-1,0 |

As per customer requirements

Pipes can be supplied with tolerances according to customer request.

## Length supplied

Random lengths: 4500-11000 mm.

Fixed lengths: within random lengths range upon request.

## Concentricity

The following concentricity values are guaranteed:

| OUTSIDE DIAMETER | CONCENTRICITY, NOT MORE THAN, % |
|------------------|---------------------------------|
| ≤ 125 mm         | 5                               |
| > 125 mm         | 7                               |

Concentricity is measured according to the formula:

$$\frac{(WT_{max} - WT_{min})}{(WT_{max} + WT_{min})}$$

Where WT<sub>max</sub> and WT<sub>min</sub> are understood to be measured on the same tube cross-section.

## Ovality

Ovality is guaranteed within the diameter tolerances.

## Straightness

Local deviation from straight line max 1 mm per each meter length.

Total deviation from straightness:

max 3.5 mm for tubes with lengths of less than 6 m; for tubes with lengths greater than 6 m, the tolerance will be increased by 0.5 mm for each 1 m over 6 m.

## 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 standards and customer requests.

Marking is painted and/or hard stenciled on pipe ends. The same data, as well as additional information according to customer's request, are indicated on the bundle tags.

## Certification

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

## Chemical composition

| Steel designation | Elements content, % |           |           |       |       |           |           |
|-------------------|---------------------|-----------|-----------|-------|-------|-----------|-----------|
|                   | C max               | Si max    | Mn max    | P max | S max | V max     | Al min    |
| E355              | 0.22                | 0.55      | 1.60      | 0.025 | 0.025 |           | 0,02      |
| E460              | 0,16-0.22           | 0,10-0.55 | 0,30-1.70 | 0.025 | 0.025 | 0,08-0.15 | 0,01-0,06 |

## Mechanical properties at $t=20\pm 2^{\circ}\text{C}$

| Steel designation | Delivery condition | Yield strength, $R_{eH}$ , N/mm <sup>2</sup> | Tensile strength $R_m$ , N/mm <sup>2</sup> | Elongation A, % | Impact test, KV, J                                |
|-------------------|--------------------|--|--|-----------------|---|
|                   |                    |  |  |                 | Test temperature, -20°C<br>Longitudinal direction |
| Not less than     |                    |  |  |                 |   |
| E355              | +SR                | 450  | 580  | 15              | 27  |
| E355              | +N                 | 355  | 490-630                                    | 22              | 27  |
| E460              | +SR                | 620  | 700  | 15              | 27  |
| E460              | +N                 | 460  | 560-700                                    | 22              | 27  |

# DIN 2391-1, 2 Seamless precision steel tubes

## Chemical composition

| Steel designation | Elements content, % |        |        |       |       |
|-------------------|---------------------|--------|--------|-------|-------|
|                   | C max               | Si max | Mn max | P max | S max |
| St 52             | 0.22                | 0.55   | 1.60   | 0.025 | 0.025 |

## Mechanical properties at t=20±2°C

| Steel designation | Delivery condition                                  |                 |   |   |                 |   |   |                         |
|-------------------|---|-----------------|---|---|-----------------|---|---|-------------------------|
|                   | BK  |                 | BKS   |   |                 | NBK   |   |                         |
|                   | Tensile strength R <sub>m</sub> , N/mm <sup>2</sup> | Elongation A, % | Tensile strength R <sub>m</sub> , N/mm <sup>2</sup> | Yield strength, R <sub>EH</sub> , N/mm <sup>2</sup> | Elongation A, % | Tensile strength R <sub>m</sub> , N/mm <sup>2</sup> | Upper yield strength, R <sub>EH</sub> , N/mm <sup>2</sup> | Percent elongation A, % |
|                   | Not less  |                 | Not less  |   |                 | Not less  |   |                         |
| St 52             | 640   | 4               | 580   | 420   | 10              | 490-630   | 355   | 22                      |

## Dimensional range

| Inside diameter, mm | Wall thickness, mm |   |   |     |   |     |   |     |   |    |    |      |    |
|---------------------|--------------------|---|---|-----|---|-----|---|-----|---|----|----|------|----|
|                     | 4,5                | 5 | 6 | 6,5 | 7 | 7,5 | 8 | 8,5 | 9 | 10 | 11 | 12,5 | 15 |
| 50                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
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| 63                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 65                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
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| 75                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 80                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 85                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 90                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 95                  |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 100                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 105                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 110                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 115                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 120                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 125                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 130                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 135                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 140                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 145                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 150                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |
| 160                 |                    |   |   |     |   |     |   |     |   |    |    |      |    |

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## Dimensional tolerances

| INSIDE DIAMETER TOLERANCE |             |           |           |           |
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| -0,25/-0,55               | -0,30/-0,65 | -0,4/-0,7 | -0,5/-0,9 | -0,5/-1,0 |

As per customer requirements

Pipes can be supplied with tolerances according to customer request.

## Length supplied

- random from 4.5 up to 11 meters
- fixed within the random length range

## Concentricity

The following concentricity values are guaranteed:

| OUTSIDE DIAMETER | CONCENTRICITY, NOT MORE THAN, % |
|------------------|---------------------------------|
| ≤ 125 mm         | 5                               |
| > 125 mm         | 7                               |

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## Marking

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## Certification

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**Interpipe Europe**

Via San Salvatore 13 - P.O. Box 745  
CH-6902 Paradiso - Lugano, Switzerland  
Tel.: **+41 91 261 39 00**  
Fax: **+41 91 261 39 01**  
E-mail: [info@eu.interpipe.biz](mailto:info@eu.interpipe.biz)

**Interpipe Central Trade**

Corneliusstrasse 34,  
60325 Frankfurt-am-Main, Germany  
Tel.: **+49 695 050 25 850**

**Interpipe Middle East**

Office №: LB191008, P.O. Box 262810,  
Jebel Ali, Dubai - UAE  
Tel.: **+971 4 812 5500**  
Fax: **+971 4 885 7412**  
E-mail: [info@ae.interpipe.biz](mailto:info@ae.interpipe.biz)

**North American Interpipe**

1800 West Loop South, Suite 1350,  
Houston, Texas, 77027 - USA  
Tel.: **+1 713 333 0333**  
Fax: **+1 713 333 0330**  
E-mail: [info@us.interpipe.biz](mailto:info@us.interpipe.biz)

**Interpipe Ukraine**

1A, Pysarzhevskiyi street  
49000 Dnipro, Ukraine  
Tel.: **+380 56 736 60 06**  
Fax: **+380 562 389 482, 389 580**  
E-mail: [info@ua.interpipe.biz](mailto:info@ua.interpipe.biz)  
[www.interpipe.biz](http://www.interpipe.biz)