

## DIN2391 ST52 EN10305 E355 Honed Hydraulic Cylinder Pipes



DIN2391 ST52 Seamless Honed Pipes

**DIN2391 Part 2** Specifies dimensions for cold finished, seamless precision steel tubes and is to be used in conjunction with DIN2391 part2 which states the relevant technical delivery conditions. The preferred sizes listed in standard are mainly used in mechanical and automotive engineering.

Where steel tubes of dimensions specified in this standard are to comply with the technical delivery conditions listed in sub clause 1.2 of DIN 2391 Part 2.

**DIN 2391 seamless precision tubes applications** —Used in Hydraulic & pneumatic cylinder, Mechanical and Automotive engineering.

## Chemical Composition

Standard	Grade		Chemical Components (%)				
	Symbol	Material No.	C	Si	Mn	P	S
DIN2391	St 52	1.058	≤0.22	≤0.55	≤1.60	≤0.025	≤0.025

## Delivery Conditions

The tubes shall be manufactured from cold drawn or cold rolled processes. The tubes shall be supplied in one of the delivery conditions as follows:

Designation	Symbol	Description
Cold finished (hard)	BK	Tubes do not undergo heat treatment following the final cold forming and thus, have a rather high resistance to deformation.
Cold finished (soft)	BKW	The final heat treatment is followed by cold drawing involving limited deformation. Appropriate further processing allows a certain degree of cold forming (e.g. bending, expanding).
Cold finished and stress-relieved	BKS	Heat treatment is applied following the last cold forming process. Subject to appropriate processing conditions, the increase in the residual stresses involved enables both forming and machining to a certain degree.
Annealed	GBK	The last cold forming process is followed by annealing in a controlled atmosphere.
Normalized	NBK	The last cold forming process is followed by annealing above the upper transformation point in a controlled atmosphere.

## Delivery Condition Symbol in accordance with EN10305 and DIN2391

Symbol in accordance with EN 10305	Symbol in accordance with DIN2391
+C	BK
+LC	BKW
+SR	BKS
+A	GBK
+N	NBK

## Mechanical Properties

Mechanical properties at room temperature													
Steel Grade		Minimum values for the delivery condition											
Steel Name	Steel Number	BK		BKW		BKS			GBK		NBK		
		Rm	A %	Rm	A %	Rm	ReH	A %	Rm	A %	Rm	ReH	A %
		Mpa		Mpa		Mpa	Mpa		Mpa		Mpa	Mpa	
St 52	1.0580	640	4	580	7	580	420	10	490	22	490 to 630	355	22

## Inspection and test list for the DIN 2391 Standard

Inspection or test types	Test frequency	
	Internal test	Acceptance test
Chemical analysis	M	M
Tensile testing	M	One per tested batch
Flattening test or extension test	M	Two per tested batch
Dimension verification	M	M
Visual inspection	M	M
NDT in order to identify leaks	Individual	Individual

**Standard:** DIN 2391

**Description Name:** DIN 2391 Seamless cold drawn tubes, DIN 2391 Seamless precision steel tubes, ST35 Precision tubes, ST45 Precision tubes, ST52 Precision tubes, Seamless precision tubes, DIN 2391 ST35 Seamless precision steel tubes, DIN 2391 ST45 Seamless precision steel tubes, DIN 2391 ST52 Seamless precision steel tubes, ST 52 Honed tubes, ST52 cylinder tubes

Size: 50mm-350mm

W.T.: 3mm-50mm

Shape: Round

Production type: Cold drawn

Length: Single random length/ Double random length or as customer's actual request max length is 10m

Grade: St52

## Seamless cold drawn pre-honed pipes



ST52 cold drawn Pre-honed pipe





### DIN2391 ST52 Seamless cold drawn pre-honed pipe inspection

Tolerance:

OD.: -/-1MM

ID.: -0.3/-0.7MM

Length: -0/+10mm

#### **Note:**

Mill test certificates will be issued according to EN10204.3

The tubes shall be Seamless cold drawn.

Inside surface not allowed Scarch Dent.

## **Seamless honed hydraulic cylinder pipe**



#### **Protection and Packing:**

Packed in wooden box or bundles protected with plastic paper, and suitably protected for seaworthy delivery or as requested.

The tubes shall be delivered with a temporary corrosion protection. The type of protection shall be at the discretion of the manufacturer.



## Application:

Apply to the hydraulic cylinder and air cylinder used.

## Read more information of this products

- [DIN2391 Seamless Precision steel tubes](#)

## Related products

### ● Carbon steel

- [ASTM A179 / ASME SA179 Seamless tubes](#)
- [ASTM A192 / ASME SA192 Seamless boiler tubes](#)
- [ASTM A210 / ASME SA210 GRADE A1 Seamless tubes](#)
- [ASTM A210 / ASME SA210 GRADE C Seamless tubes](#)

### ● Alloy steel

- [ASTM A213 T11 T12 T22 Seamless alloy tubes](#)
- [ASTM A 213/A 213M T2, T5, T5b, T9, T91 Seamless Alloy Steel tubes](#)
- [ASTM A335 P1, P2, P5, P9 Seamless alloy pipes](#)
- [ASTM A335 P11, P12, P22, P91 seamless alloy pipes](#)
- [ASTM A209 ASME SA209 T1 tubes](#)

- **Stainless steel and Duplex**

- [ASTM A269 Stainless Steel Tubes](#)
- [ASTM A213 Stainless Steel Tubes](#)
- [ASTM A249 Stainless Steel Tubes](#)
- [ASTM A270 Sanitary Stainless Tubing](#)
- [ASTM A312 Stainless Steel Pipes](#)
- [ASTM A789 Duplex Stainless Tubing](#)

- **Copper and Brass**

- [ASTM B111 Copper and Brass Tubes](#)

**Read more information of CTS TUBES main products**

- [Seamless carbon steel tubes](#)
- [Cold drawn precision steel tubes](#)
- [Seamless alloy steel tubes](#)
- [Copper alloy seamless tubes](#)
- [Titanium and titanium alloy tubes](#)
- [Stainless steel tubes](#)
- [U bent heat exchanger tubes](#)
- [Fin tubes](#)
- [Bearing steel tubes](#)



## About CTS TUBES

CTS TUBES provide a wide range of steel products as Steel Pipes, Seamless Tube and Seamless Pipes, Alloy Pipes, Pipe Fittings, Stainless Steel Pipe, Copper Tube and Titanium Alloy Tube used in the industry, construction etc. We are looking forward to getting in contact by phone or email and we hope that you enjoy our website. More than ten years of profound knowledge turn CTS TUBES to your partner as trading house for tubes, fittings and stainless steel. The name CTS TUBES stands for certified quality, because of that, all products of our wide range consist to demanding norms and the highest standards. CTS TUBES also stands for know-how, effective service, and best



# CTSTUBES

*Professional Pipeline Supplier*

solutions for your profit. Our qualified team in our export department in China is always at your disposal and ready to help you. Get in touch if you are interested in our products or cooperation.

## Get in Touch



If you are interested in our products or cooperation with us, even having a comment or a suggestion, please contact us now for more detailed information.

*Tel.: +86 185 5109 0083 | E-mail: [cts@ctstubes.com](mailto:cts@ctstubes.com)*

----- [www.ctstubes.com](http://www.ctstubes.com) -----