



Products and Services for Hydraulic Cylinder Applications

ABOUT US

Benteler Distribution with over 1600 employees is one of Europe's leading service provider and distributor of steel tubes and accessories.

We offer our customers complete **customised solutions worldwide** in machine building, mechanical engineering, steel and metal construction, power generation and petrochem, the automotive industry as well as in the furniture and leisure industry

Our international presence combined with our 50 plus years of industry experience, enables us to be a competent partner dedicated to the success of our customers.

By applying the same international standards employed in our global network present in some 30 countries, we are able to offer you a full scope of products and services at the same high level of quality.

**Products and Services for Hydraulic Cylinder Applications**

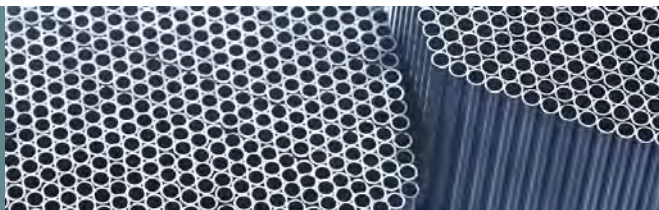
Benteler Distribution offers a wide stock and product range for the manufacture of hydraulic cylinders

Our product stock range covers:

- Cold drawn welded and seamless cylinder steel tubes in various inner finishing conditions:
- Honed and suitable for honing
- Skived and Roller Burnished and suitable for
- Ready to use
- Large diameter hot finished seamless tubes suitable for machining and honing
- Hard chrome bars and tubes for piston rod applications in both stainless and carbon steels.
- Feed-pipes in both carbon and stainless

At Benteler Distribution we offer the following:

- Single source for your hydraulic steel material needs
- Processing services: cutting, surface treatment, heat treatment and machining to customers' requirements.



Cold Drawn Cylinder Tubes Suitable To Hone (HPZ)

Specification: EN 10305 part 1/2 (former DIN 2391/3)
 Grade: E355 (St 52), other materials upon request
 Delivery condition: + SR (BK+S) cold drawn and stress-relieved
 Finish: Random lengths
 Cut lengths
 ID Tolerances: Table 1, suitable for honing
 Table 2 suitable for roller burnishing
 Outside diameter: 30 to 200 mm
 Wall thickness: 5 to 20 mm
 Certification: 3.1 according to EN 10204, others upon request

Inner Diameter	Table 1 *	Table 2 *	
40	- 0,20 - 0,35	- 0,40 - 0,65	* Stock changes upon agreement
45			
50	- 0,20 - 0,40		
55			
60	- 20 - 0,45		
63			
65		- 50 - 0,80	
70			
75	- 0,25 - 0,55		
80			
85			
90			
95			
100			
110	- 0,25 - 0,65	- 0,50 - 1,00	
120			
125			
130			
140			
150			
160			

Cold Drawn and Hot Finished Cylinder Tube with Honed or Skived- Roller Burnished Bore (HP)

Specification: Cold Drawn EN 10305-1/2 (former DIN 2391/3)
 Hot Finished EN 10297-1 or EN 10210 -1
 Grade: E355 or S355 (St 52), other materials on request
 Delivery condition: Cold drawn stress-relieved (BK+S).
 Hot finished as rolled (AR) or normalised (+ N)
 Finish: Random lengths
 Cut lengths
 Ends: Capped
 Tolerances ID: H8, ISO 286 Part 2 for cold finished,
 H8-H11, ISO 286 Part 2 for hot finished
 Outside diameter: 25 to 280 mm for cold finished
 25 to 660 mm for hot finished
 Inner diameter: 20 to 600 mm
 Interior finish: Roller burnished or honed
 Surface Finish: Ra max. 0.25 µm for cold finished
 Ra max. 0.5 µm for hot finished
 Certification: 3.1 according to EN 10204, others upon request



Welded Cold Drawn Cylinder Tubes Ready-To-Use (HPS)

Specification:	EN 10305-2 (former DIN 2393-2)
Grade:	E355 (St 52), other materials on request
Delivery Condition:	As drawn + C (BK)
Finish:	Random lengths Cut lengths
Ends:	Capped
OD tolerances:	EN 10305-2 (former DIN 2393-1)
ID Tolerances:	H9, ISO 286, Part 2
Outside diameter:	30 to 140 mm
Inner diameter:	20 to 125 mm
Inner Surface:	smoothed bore
Roughness:	Ra max. 0.8 µm , up to 1.0 µm exceptions permitted
Certification:	3.1 according to EN 10204, others upon request

**Seamless Cold Precision Steel Tubes for Piston Tube Applications (HPK)**

Delivery Terms:	EN 10305-1 (former DIN 2391-2)
Material:	E355 (St 52), other materials on request
Delivery Status:	C + (BK) cold drawn hard + SR (BK+S) cold drawn and stress-annealed + N (NBK) normalised
Finish:	Random lengths Cut lengths
OD tolerances:	TBA
ID Tolerances:	TBA
Outside diameter:	35 to 140 mm
Wall thickness:	3.5 to 15 mm
Certification:	3.1 according to EN 10204, others upon request

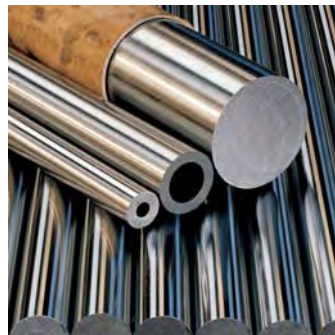


Hard Chrome Piston Tubes (HPK)

Specification:	EN 10305-1 (former DIN 2391-2)
Grade:	E355 (St 52), other materials on request
Delivery Condition:	C + (BK) cold drawn hard + SR (BKS) cold drawn and stress-annealed + N (NBK) annealed normal
Finish:	Random lengths Cut lengths ready to use
Tolerances OD:	f7 - ISO 286 Part 2
Outside diameter:	35 to 140 mm
Wall thickness:	3.5 to 15.0 mm
Surface:	hard chrome
Chrome layer thickness:	20 µm minimum
Roughness:	Ra max. 0.2 µm
Micro hardness of chromium:	min. 850 HV 0,1 min. 72 h NSS R 10
Test conditions:	ISO 9227
Evaluation:	ISO 10289
Certification	3.1 according to EN 10204, others on request

Hard Chrome Bars for Piston Rod Applications

Grades:	20MnV6, Ck45 (C45E) AISI 329 Stainless AISI 630 Stainless Further materials upon request
Finish:	Random lengths Cut lengths
Tolerances OD:	8 to 16 mm - ISO f8 18 to 160 mm = ISO f7
Surface:	Hard chrome
OD /	8 to 18 mm, 14 µm min
Chrome thickness:	20 to 160 mm 20 µm min
Roughness:	Ra max. 0.2 µm
Micro hardness of chromium:	min. 850 HV 0,1
Corrosion resistance	min. 72 h NSS rating 10. Min 216 hours NSS rating 9 OD 18 to 120 mm
Certification:	3.1 according to EN 10204, others upon request



Customised Solutions Worldwide

**Benteler Distribution Ltd**

New Progress Works
Crompton Way
Bolton
Lancashire
BL1 8TY

Tel 0845 330 6727

Fax 0845 330 6728

Email: sales@benteler-distribution.co.uk
www.benteler-distribution.co.uk