

1. Description: Honed tube is a kind of smooth bore steel tube used to manufacture hydraulic cylinder barrels that is the core part of a piece of hydraulic cylinder.

2. Commodity: Cold drawn seamless honed tube for hydraulic cylinder

3. Size range: 40mm*30mm-580mm*500mm

4. Available steel grade:

SAE/AISI:	SAE1020, SAE1026, SAE1045, SAE4130, SAE4140
DIN:	ST52, ST52.3, ST52.4
EN:	E355, C45E, 25CrMo4, 42CrMo4, CK45, S45C, E410, E470
GB:	20#, 45#, 16Mn, Q345B, Q345C, Q345D, Q345E, 25Mn, 27SiMn

5. Manufacture method: Cold rolled, hydraulic cold drawn, hot rolled+deep hole boring

6. Delivery condition:

BK	BKW	BKS	GBK	NBK	Q+T
+C	+LC	+SR	+A	+N	
Cold rolled	Cold drawn	Stress relieved	Annealed	Normalized	Quenched+Tempered

7. Bore treatment: Honing, skiving&roller burnishing

8. Bore roughness control: Ra0.25um max or Ra0, 35um max for honed tubes, Ra0.25um max for skived&roller burnished tubes.

9. End finish: Plain ends with square cuts, free of burrs for honed tubes. Little bevelled ends for skived&roller burnished tubes.

10. Standard export packing: In bundles tied with steel strips. Int&ext oil coating. End plastic caps. External packing by PVC bags and knit bags.

11. Customized packing and marking can be provided upon request.

12. H8 tolerance:

ID range	Tolerance	ID range	Tolerance
18< d ≤30	+0/+0.033	180< d ≤250	+0/+0.072
30< d ≤50	+0/+0.039	250< d ≤300	+0/+0.081
50< d ≤80	+0/+0.046	300< d ≤315	+0/+0.081
80< d ≤120	+0/+0.054	315< d ≤400	+0/+0.089
120< d ≤180	+0/+0.063	400< d ≤500	+0/+0.097

13. Difference between honed tube and skived&roller burnished tube: In hydraulic cylinder industry, there are 2 solutions for bore treatment: Honing, and skiving&roller burnishing. Honing or skiving&roller burnishing leads to different internal surface image, but both ensure good roughness.

Name : honed tubes, honing pipe, hydraulic cylinder tubes, pneumatic cylinder tubes, honed pipe, honing tube, seamless honed steel tube, precision tubes, cold drawn honed tubes, skived tubes, skived and roller burnished tubes, skived pipes, SRB tube, SRB pipe, hydraulic SRB tube, hydraulic cylinder skived tubes

Popular standard and steel grade:

EN10305-1	E355 E235 E410 E470 C45E
DIN2391-1	ST52 ST45 ST52.3
ASTM A519	SAE1020 SAE1045 SAE1026
GB/T	20# 45# 16Mn Q345B Q345D Q345E 42CrMo 27SiMn

Application: hydraulic cylinder, pneumatic cylinder, Jack, cylinder barrel

Manufacture Method: cold drawn, cold rolled, Hot rolled+Deep Hole Boring

Heat Treating Method/Delivery Condition:

BK	BKS	GBK	NBK	Q+T
+C	+SR	+A	+N	Q+T
Cold drawn	Stress relieved	Annealed	Normalized	QUENCHED + TEMPERED

Hydraulic & pneumatic tube size and parameters:

Manufacture method	Cylinder ID (mm)	Length (m)	Straightness (mm/m)	Tolerance on ID	Tolerance on WT	Roughness (μm)
Cold drawn	40-420	≤16M	0.2-0.5	Depends on requirement	±8%	0.8-1.6
Cold rolled	30-100	≥14M	0.2-0.5	Depends on requirement	±5%	0.8-1.2
Cold drawn- honed	40-420	14M	0.2-0.3	H8-H9	±8%	0.2-0.8
Cold drawn-skived & burnished	40-300	9M	0.2-0.3	H8-H9	±8%	≤0.4
Deep hole boring- honed	50-1000	12M	0.2-0.3	H8-H9	±8%	≤0.8

Deep hole boring- skived	50-300	9M	0.2-0.3	H8-H9	±8%	≤0.4
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Mechanical property:

Final Supply Condition	Cold finished (Hard)(BK)		Cold drawn and stress-relieved (BK+S or + SR)			Hardness HB
	Parameters	T.S obN/mm2	Elongation δ5%	T.S obN/mm2	Y.S OsN/mm2	
20# (A106B, ST45, E255)	>=550	>=8	>=520	>=375	>=12	175
45#(CK45)	>=650	>=5	>=600	>=500	>=10	190
Q345B(ST52, E355)	>=640	>=5	>=600	>=520	>=15	190
25Mn	>=640	>=5	>=600	>=510	>=15	195
27SiMn	>=840	>=5	>=720	>=600	>=10	210

Chemical Properties:

Material	C%	Mn%	Si%	S%	P%
20#	0.17-0.23	0.35-0.65	0.17-0.37	≤0.035	≤0.035
ST45	≤0.21	≥0.4	≤0.35	≤0.025	≤0.025
E255	≤0.21	0.4-1.1	≤0.35	≤0.025	≤0.025
45#	0.42-0.50	0.50-0.80	0.17-0.37	≤0.035	≤0.035
Q345B	≤0.20	≤1.70	≤0.50	≤0.035	≤0.035
E355	≤0.22	≤1.6	≤0.55	≤0.025	≤0.025
ST52	≤0.22	≤1.6	≤0.55	≤0.04	≤0.04
25Mn	0.22-0.29	0.70-1.0	0.17-0.37	≤0.035	≤0.035
27SiMn	0.24-0.32	1.10-1.40	1.10-1.40	≤0.035	≤0.035

Tolerance on ID:

ID	Tolerance for ID (μm)			
	H7	H8	H9	H10
30	+21/0	+33/0	+52/0	+84/0
>30-50	+25/0	+39/0	+62/0	+100/0
>50-80	+30/0	+46/0	+74/0	+120/0
>80-120	+35/0	+54/0	+87/0	+140/0
>120-180	+40/0	+63/0	+100/0	+160/0
>180-250	+46/0	+72/0	+115/0	+185/0
>250-315	+52/0	+81/0	+140/0	+210/0
>315-400	+57/0	+89/0	+170/0	+230/0

Part of size list (ID*OD)

40*50		100*127		240*273
40*55		110*130		250*266
50*60		120*140		250*280
50*63		120*145		250*300
60*70		125*140		280*323
60*73		125*145		280*325
63*73		140*165		300*320
63*76		140*168		300*356
70*80		150*180		320*340
70*82		160*184		320*356
70*85		160*194		320*370
80*90		170*200		350*370
80*92		180*210		400*420
80*95		200*216		
80*100		200*220		
90*102		200*232		
90*105		200*245		
100*114		220*250		

100*121

220*273

