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SEAMLESS PRECISION STEEL TUBES

1. Standards

EN10305-1 DIN 2391 (has been replaced with EN 10305-1) STAS 530/1

2. Used

In mechanical and automotive industries.

3. Dimensions, Tolerances

- Precision steel tubes DIN 2391 and EN 10305-1 according Tab.1;
- Precision steel tubes for honing according Tab.2.

Tab.1 Dimensions and Tolerances – Precision tubes acc.DIN 2391 & EN 10305

WT		*mm*	*1.5*	*1.8*	*2.0*	*2.2*	*2.5*	*2.8*	*3.0*	*3.5*	*4.0*	*4.5*
		in	*0.059*	*0.071*	*0.079*	*0.087*	*0.098*	*0.110*	*0.118*	*0.138*	*0.157*	*0.177*
OD			**ID**									
mm	in	toler.										
20	0.787	±.08	17±.08	16.4±.08	16±.08	15.6±.15	15±.15	14.4±.15	14±.15	13±.15	12±.15	11±.15
22	0.866	±.08	19±.08	18.4±.08	18±.08	17.6±.08	17±.15	16.4±15	16±.15	15±.15	14±.15	13±.15
25	0.984	±.08	22±.08	21.4±.08	21±.08	20.6±.08	20±.08	19.4±.15	19±.15	18±.15	17±.15	16±.15
26	1.024	±.08	23±.08	22.4±.08	22±.08	21.6±.08	21±.08	20.4±.15	20±.15	19±.15	18±.15	17±.15
28	1.102	±.08	25±.08	24.4±.08	24±.08	23.6±.08	23±.08	22.4±.08	22±.15	21±.15	20±.15	19±.15
30	1.181	±.08	27±.08	26.4±.08	26±.08	25.6±.08	25±.08	24.4±.08	24±.15	23±.15	22±.15	21±.15
32	1.260	±.15		28.4±.15	28±.15	27.6±.15	27±.15	26.4±15	26±.15	25±.15	24±.15	23±.15
35	1.378	±.15			31±.15	30.6±.15	30±.15	29.4±.15	29±.15	28±.15	27±.15	26±.15
38	1.496	±.15						32.4±.15	32±.15	31±.15	30±.15	29±.15
40	1.575	±.15							34±.15	33±.15	32±.15	31±.15
42	1.654	±.20							36±.20	35±.20	34±.20	33±.20
45	1.772	±.20							39±.20	38±.20	37±.20	36±.20
48	1.890	±.20							42±.20	41±.20	40±.20	39±.20
50	1.969	±.20							44±.20	43±.20	42±.20	41±.20
55	2.165	±.25							49±.25	48±.25	47±.25	46±.25
60	2.362	±.25									52±.25	51±.25
65	2.559	±.30									57±.30	56±.30
70	2.756	±.30									62±30	61±.30

Tab.1 Dimensions and Tolerances – Precision tubes acc.DIN 2391 & EN 10305 - *table continued*

WT		mm	5	5.5	6	7	8	9	10	12	14
		in	*0.197*	*0.217*	*0.236*	*0.276*	*0.315*	*0.354*	*0.394*	*0.472*	*0.551*
OD			**ID**								
mm	in	toler.									
20	0.787	±.08	10±.15								
22	0.866	±.08	12±.15								
25	0.984	±.08	15±.15	14±.15	13±.15						
26	1.024	±.08	16±.15	15±.15	14±.15	12±.15					
28	1.102	±.08	18±.15	17±.15	16±.15	14±.15	12±.15				
30	1.181	±.08	20±.15	19±.15	18±.15	16±.15	14±.15				
32	1.260	±.15	22±.15	21±.15	20±.15	18±.15	16±.15				
35	1.378	±.15	25±.15	24±.15	23±.15	21±.15	19±.15	17±.15	15±.15		
38	1.496	±.15	28±.15	27±.15	26±.15	24±.15	22±.15	20±.15	18±.15		
40	1.575	±.15	30±.15	29±.15	28±.15	26±.15	24±.15	22±.15	20±.15		
42	1.654	±.20	32±.20	31±.20	30±.20	28±.20	26±.20	24±.20	22±.20		
45	1.772	±.20	35±.20	34±.20	33±.20	31±.20	29±.20	27±.20	25±.20		
48	1.890	±.20	38±.20	37±.20	36±.20	34±.20	32±.20	30±.20	28±.20		
50	1.969	±.20	40±.20	39±.20	38±.20	36±.20	34±.20	32±.20	30±.20		
55	2.165	±.25	45±.25	44±.25	43±.25	41±.25	39±.25	37±.25	35±.25	31±.30	
60	2.362	±.25	50±.25	49±.25	48±.25	46±.25	44±.25	42±.25	40±.25	36±.30	
65	2.559	±.30	55±.30	54±.30	53±.30	51±.30	49±.30	47±.30	45±.30	41±.30	
70	2.756	±.30	60±.30	59±.30	58±.30	56±.30	54±.30	52±.30	50±.30	46±.30	
75	2.953	±.35	65±.35	64±.35	63±.35	61±.35	59±.35	57±.35	55±.35	51±.35	
80	3.150	±.35	80±.35	69±.35	68±.35	66±.35	64±.35	62±.35	60±.35	56±.35	52±.35
85	3.346	±.40	75±.40	85±.40	73±.40	71±.40	69±.40	67±.40	65±.40	61±.40	57±.40
90	3.543	±.40	80±.40	90±.40	78±.40	76±.40	74±.40	72±.40	70±.40	66±.40	62±.40
95	3.740	±.45			83±.45	81±.45	79±.45	77±.45	75±.45	71±.45	67±.45
100	3.937	±.45			88±.45	86±.45	84±.45	82±.45	80±.45	76±.45	72±.45
110	4.331	±.50				96±.50	94±.50	92±.50	90±.50	86±.50	82±.50

WT		mm	7	8	9	10	12	14	16	18	20
		in	*0.276*	*0.315*	*0.354*	*0.394*	*0.472*	*0.551*	0.630	0.709	0.787
OD			**ID**								
mm	in	toler.									
120	4.724	±.50	106±.50	104±.50	102±.50	100±.50	96±.50	92±.50	88±.50	84±.50	
130	5.118	±.70	116±.70	114±.70	112±.70	110±.70	106±.70	102±.70	98±.70	94±.70	
140	5.512	±.70	126±.70	124±.70	122±.70	120±.70	116±.70	112±.70	108±.70	104±.70	
150	5.906	±.80		134±.80	132±.80	130±.80	126±.80	122±.80	118±.80	114±.80	
160	6.299	±.80				140±.80	136±.80	132±.80	128±.80	124±.80	120±.80
170	6.693	±.90				150±.90	146±.90	142±.90	138±.90	134±.90	130±.90
180	7.087	±.90				160±.90	156±.90	152±.90	148±.90	144±.90	140±.90
190	7.480	±1.0				170±1.0	166±1.0	162±1.0	158±1.0	154±1.0	150±1.0
200	7.874	±1.0					176±1.0	172±1.0	168±1.0	164±1.0	160±1.0
210	8.268	±1.2							178±1.2	174±1.2	170±1.2

Notes: 1.Tolerances from above table are available on by in BK, BK+S condition.
Other delivery conditions are not available.
2. Intermediate sizes can be produced subject of agreement before ordering.

Tab. 2 Dimensions and Tolerances - Precision steel tubes for honing

WT		mm	5	6	7.5	10	12.5	15	17.5	20
		in	0.197	0.236	0.295	0.394	0.492	0.591	0.689	0.787
OD										
mm	in	toler.				*ID*				
30	1.181	±.08	20 -.15/-.35							
32	1.260	±.15		20 -.15/-.35						
35	1.378	±.15	25 -.15/-.35		20 -.20/-.40					
37	1.457	±.15		25 -.15/-.35						
40	1.575	±.15	30 -.15/-.35		25 -.20/-.40	20 -.20/-.40				
42	1.654	±.20	32 -.15/-.45	30 -.15/-.35						
44	1.732	±.20		32 -.15/-.35						
45	1.772	±.20	35 -.15/-.35		30 -.20/-.40	25 -.20/-.40				
47	1.850	±.20		35 -.15/-.35	32 -.20/-.40					
50	1.969	±.20	40 -.25/-.45		35 -.20/-.40	30 -.20/-.40				
52	2.047	±.25		40 -.25/-.45		32 -.20/-.40				
55	2.165	±.25	45 -.25/-.45		40 -.25/-.45					
57	2.244	±.25		45 -.25/-.45						
60	2.362	±.25	50 -.30/-.55		45 -.25/-.45	40 -.25/-.45				
62	2.441	±.30		50 -.30/-.55						
65	2.559	±.30	55 -.30/-.55		50 -.30/-.55	45 -.25/-.45				
67	2.638	±.30		55 -.30/-.55						
70	2.756	±.30	60 -.35/-.60		55 -.30/-.55	50 -30/-.55				
72	2.835	±.35		60 -.35/-.60						
75	2.953	±.35		63 -.35/-.60	60 -.35/-.60	55 -.30/-.55	50 -.40/-.70			
77	3.031	±.35		65 -.35/-.60						
78	3.071	±.35			63 -.35/-.60					
80	3.150	±.35			65 -.35/-.60	60 -.35/-.60	55 -.40/-.70			
82	3.228	±.40		70 -.35/-.65						
83	3.268	±.40				63 -.35/-.60				
85	3.346	±.40			70 -.35/-.65	65 -.35/-.60	60 -.40/-.70			
87	3.425	±.40		75 -.35/-.65						
88	3.465	±.40					63 -.40/-.70			
90	3.543	±.40			75 -.35/-.65	70 -.35/-.65	65 -.40/-.70			
92	3.622	±.45		80 -.35/-.65						
95	3.740	±.45			80 -.35/-.65	75 -.35/-.65	70 -.40/-.70			
100	3.937	±.45			85 -.35/-.65	80 -.35/-.65	75 -.40/-.70			
105	4.134	±50			90 -.35/-.65	85 -.35/-.65	80 -.40/-.70	75 -.40/-.70		
110	4.331	±50			95 -.35/-.65	90 -.35/-.65	85 -.40/-.70	80 -.40/-.70		
115	4.528	±50			100 -.40/-.80	95 -.35/-.65	90 -.40/-.70	85 -.40/-.70		
120	4.724	±50			105 -.40/-.80	100 -.40/-.80	95 -.60/-1.0	90 -.40/-.70		
125	4.921	±.70			110 -.40/-.80	105 -.60/-1.0	100 -.60/-1.0	95 -.60/-1.0		
130	5.118	±.70			115 -.60/-1.0	110 -.60/-1.0	105 -.60/-1.0	100 -.60/-1.0		
135	5.315	±.70			120 -.60/-1.0	115 -.60/-1.0	110 -.60/-1.0	105 -.60/-1.0		
140	5.512	±.70			125 -.60/-1.0	120 -.60/-1.0	115 -.60/-1.0	110 -.60/-1.0		
145	5.709	±.80			130 -.60/-1.0	125 -.60/-1.0	120 -.60/-1.0	115 -.60/-1.0	110 -.60/-1.0	
150	5.906	±.80			135 -.60/-1.1	130 -.60/-1.0	125 -.60/-1.0	120 -.60/-1.0	115 -.60/-1.0	110 -.60/-1.0
155	6.102	±.80			140 -.60/-1.1	135 -.60/-1.1	130 -.60/-1.0	125 -.60/-1.0	120 -.60/-1.0	115 -.60/-1.0
160	6.299	±.80			145 -.60/-1.1	140 -.60/-1.1	135 -.60/-1.1	130 -.60/-1.0	125 -.60/-1.0	120 -.60/-1.0
165	6.496	±.90			150 -.60/-1.1	145 -.60/-1.1	140 -.60/-1.1	135 -.60/-1.1	130 -.60/-1.0	125 -.60/-1.0
170	6.693	±.90				150 -.60/-1.1	145 -.60/-1.1	140 -.60/-1.1	135 -.60/-1.1	130 -.60/-1.0
175	6.890	±.90				155 -.60/-1.1	150 -.60/-1.1	145 -.60/-1.1	140 -.60/-1.1	135 -.60/-1.1
180	7.087	±.90				160 -.60/-1.1	155 -.60/-1.1	150 -.60/-1.1	145 -.60/-1.1	140 -.60/-1.1
185	7.283	±1.0				165 -.70/-1.2	160 -.60/-1.1	155 -.60/-1.1	150 -.60/-1.1	145 -.60/-1.1
190	7.480	±1.0				170 -.70/-1.2	165 -.70/-1.2	160 -.60/-1.1	155 -.60/-1.1	150 -.60/-1.1
195	7.677	±1.0				175 -.70/1.2	170 -.70/-1.2	165 -.70/-1.2	160 -.60/-1.1	155 -.60/-1.1
200	7.874	±1.0					175 -.70/1.2	170 -.70/-1.2	165 -.70/-1.2	160 -.60/-1.1
205	8.071	±1.2							170 -.70/-1.2	165 -.70/-1.2
210	8.268	±1.2							175 -.70/1.2	170 -.70/-1.2

Notes:
1. Tolerances from above table are available on by in BK, BK+S condition. Other delivery conditions are not available.
2. Intermediate sizes can be produced subject of agrement before ordering.

4. Chemical Composition (%)

Steel Goup	C	Si	Mn	P max	S max	V
St35, E235, OLT35	max 0.17	max 0.35	min 0.40	0.025	0.025	
St45, OLT45	max 0.21	max 0.35	min 0.40	0.025	0.025	
St52, E355, OL52.3k	max 0.22	max 0.55	max 1.60	0.025	0.025	
E410, STE460	0.16÷0.22	0.10÷0.50	1.30÷1.70	0.030	0.035	0.08÷0.15

5. Mechanical Properties

Steel Goup	delivery cond.	Tensile Strength	Yield Limit	Elongation
		N/mm²	N/mm²	%
St35, E235, OLT35	BKS	min 420	min 315	min 14
St45, OLT45	BKS	min 520	min 375	min 12
St52, E355, OL52.3k	BKS	min 580	min 420	min 10
E410, STE460	BKS	Min 690	Min 590	Min 12

6. Lengths

-random lengths: 6÷9 m or 8÷11 m;
-fixed lengths within the random lengths range;
-tolerances: +100/-0 mm.

7. Protection

-unprotected;
-external varnished with black or clear lacquer;
-if required, the tubes can be delivered with plastic caps at both ends;
-oiled.

8. Marking

The tubes will have technical details marked on tags attached to every bundle.
According to standard or per customer request.

9. Delivery

Bundles up to 2000 kg.
Quantity tolerances: ±5% per size or / and per total.

10. Mill test report

Mill test reports are issued to customer requirements. Usually they comply with EN 10204, type 3.1.

12. Quality certified:

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