

# Useful information - Telescoping RHS



Female (outer)			Nominal Clearance		Male (Inner)	
d	b	t	top	side	d	b
mm	mm	mm	mm	mm	mm	mm
<b>SQUARE HOLLOW SECTIONS</b>						
13	13	1.8			No Section Available	
15	15	1.8			No Section Available	
20	20	1.6	<b>1.8</b>	<b>1.8</b>	<b>15</b>	<b>15</b>
25	25	1.6	<b>1.8</b>	<b>1.8</b>	<b>20</b>	<b>20</b>
25	25	2.0	<b>1.0</b>	<b>1.0</b>	<b>20</b>	<b>20</b>
25	25	2.5	<b>0.0</b>	<b>0.0</b>	<b>20</b>	<b>20</b>
30	30	1.6	<b>1.8</b>	<b>1.8</b>	<b>25</b>	<b>25</b>
30	30	2.0	<b>1.0</b>	<b>1.0</b>	<b>25</b>	<b>25</b>
30	30	2.0	<b>1.0</b>	<b>1.0</b>	<b>25</b>	<b>25</b>
35	35	1.6	<b>1.8</b>	<b>1.8</b>	<b>30</b>	<b>30</b>
35	35	2.0	<b>1.0</b>	<b>1.0</b>	<b>30</b>	<b>30</b>
35	35	2.5	<b>0.0</b>	<b>0.0</b>	<b>30</b>	<b>30</b>
35	35	3.0	<b>4.0</b>	<b>4.0</b>	<b>25</b>	<b>25</b>
40	40	1.6	<b>1.8</b>	<b>1.8</b>	<b>35</b>	<b>35</b>
40	40	2.0	<b>1.0</b>	<b>1.0</b>	<b>35</b>	<b>35</b>
40	40	2.5	<b>0.0</b>	<b>0.0</b>	<b>35</b>	<b>35</b>
40	40	3.0	4.0	4.0	30	30
40	40	4.0	2.0	2.0	30	30
50	50	1.6	6.8	6.8	40	40
50	50	2.0	6.0	6.0	40	40
50	50	2.5	5.0	5.0	40	40
50	50	3.0	4.0	4.0	40	40
50	50	4.0	2.0	2.0	40	40
50	50	5.0	<b>0.0</b>	<b>0.0</b>	<b>40</b>	<b>40</b>
65	65	1.6	11.8	11.8	50	50
65	65	2.0	11.0	11.0	50	50
65	65	2.5	10.0	10.0	50	50
65	65	3.0	9.0	9.0	50	50
65	65	4.0	7.0	7.0	50	50
65	65	5.0	5.0	5.0	50	50
65	65	6.0	3.0	3.0	50	50
75	75	2.0	6.0	6.0	65	65
75	75	2.5	5.0	5.0	65	65
75	75	3.0	4.0	4.0	65	65
75	75	3.5	3.0	3.0	65	65
75	75	4.0	2.0	2.0	65	65
75	75	5.0	<b>0.0</b>	<b>0.0</b>	<b>65</b>	<b>65</b>
75	75	6.0	13.0	13.0	50	50

Female (outer)			Nominal Clearance		Male (Inner)	
d	b	t	top	side	d	b
mm	mm	mm	mm	mm	mm	mm
89	89	3.5	7.0	7.0	75	75
89	89	5.0	4.0	4.0	75	75
89	89	6.0	2.0	2.0	75	75
90	90	2.0	11.0	11.0	75	75
90	90	2.5	10.0	10.0	75	75
100	100	2.0	6.0	6.0	90	90
100	100	2.5	5.0	5.0	90	90
100	100	3.0	4.0	4.0	90	90
100	100	4.0	2.0	2.0	90	90
100	100	5.0	<b>0.0</b>	<b>0.0</b>	<b>90</b>	<b>90</b>
100	100	6.0	13.0	13.0	75	75
100	100	9.0	7.0	7.0	75	75
125	125	4.0	17.0	17.0	100	100
125	125	5.0	15.0	15.0	100	100
125	125	6.0	13.0	13.0	100	100
125	125	9.0	7.0	7.0	100	100
150	150	5.0	15.0	15.0	125	125
150	150	6.0	13.0	13.0	125	125
150	150	9.0	7.0	7.0	125	125
200	200	5.0	40.0	40.0	150	150
200	200	6.0	38.0	38.0	150	150
200	200	9.0	32.0	32.0	150	150
250	250	6.0	38.0	38.0	200	200
250	250	9.0	32.0	32.0	200	200

Female (outer)			Nominal Clearance		Male (Inner)	
d	b	t	top	side	d	b
mm	mm	mm	mm	mm	mm	mm
75	50	1.6	6.8	11.8	65	35
75	50	2.0	6.0	11.0	65	35
75	50	2.5	5.0	10.0	65	35
75	50	3.0	4.0	9.0	65	35
75	50	4.0	2.0	7.0	65	35
75	50	5.0	<b>0.0</b>	<b>5.0</b>	<b>65</b>	<b>35</b>
75	50	6.0	13.0	13.0	50	25
100	50	1.6	21.8	21.8	75	25
100	50	2.0	21.0	21.0	75	25
100	50	2.5	20.0	20.0	75	25
100	50	3.0	19.0	19.0	75	25
100	50	3.5	18.0	18.0	75	25
100	50	4.0	17.0	17.0	75	25
100	50	5.0	15.0	15.0	75	25
100	50	6.0	13.0	13.0	75	25
100	50	1.6	31.8	31.8	65	35
100	50	2.0	31.0	31.0	65	35
100	50	2.5	30.0	30.0	65	35
100	50	3.0	29.0	29.0	65	35
100	50	3.5	28.0	28.0	65	35
100	50	4.0	27.0	27.0	65	35
100	50	5.0	25.0	25.0	65	35
100	50	6.0	23.0	23.0	65	35
125	75	2.0	21.0	21.0	100	50
125	75	2.5	20.0	20.0	100	50
125	75	3.0	19.0	19.0	100	50
125	75	4.0	17.0	17.0	100	50
125	75	5.0	15.0	15.0	100	50
125	75	6.0	13.0	13.0	100	50
150	100	4.0	17.0	17.0	125	75
150	100	5.0	15.0	15.0	125	75
150	100	6.0	13.0	13.0	125	75
150	100	9.0	7.0	7.0	125	75
200	100	4.0	42.0	42.0	150	50
200	100	5.0	40.0	40.0	150	50
200	100	6.0	38.0	38.0	150	50
200	100	9.0	32.0	32.0	150	50
250	150	5.0	40.0	40.0	200	100
250	150	6.0	38.0	38.0	200	100
250	150	9.0	32.0	32.0	200	100

<b>RECTANGULAR HOLLOW SECTIONS</b>						
d	b	t	top	side	d	b
mm	mm	mm	mm	mm	mm	mm
50	20	1.6			No Section Available	
50	20	2.0			No Section Available	
50	20	2.5			No Section Available	
50	20	3.0			No Section Available	
50	25	1.6			No Section Available	
50	25	2.0			No Section Available	
50	25	2.5			No Section Available	
50	25	3.0			No Section Available	
65	35	2.0	11.0	6.0	50	25
65	35	2.5	10.0	5.0	50	25
65	35	3.0	9.0	4.0	50	25
65	35	4.0	7.0	2.0	50	25
75	25	1.6	21.8	<b>1.8</b>	<b>50</b>	<b>20</b>
75	25	2.0	21.0	<b>1.0</b>	<b>50</b>	<b>20</b>
75	25	2.5	20.0	<b>0.0</b>	<b>50</b>	<b>20</b>

## NOTE

RHS is not a precision tube and all dimensions shown in the chart, although in accordance with the specifications, may vary marginally within the tolerance bands permitted.

Sizes shown in bold print are sizes that provide a clearance of less than 2.0mm. The internal weld bead and variation in corner radii between sections will need to be considered when closer fits are indicated. Where telescoping over some length is desired, additional allowance may be needed for straightness. For tight fits it is recommended that some form of testing be carried out prior to committing material.

## HOW TO USE THIS CHART

- Select the appropriate table for the type of hollow section required. Select the size of female (or outside) member closest to your requirements for the left hand column.
- Depending on the application select the clearance required between the two members. Members may need to slide freely

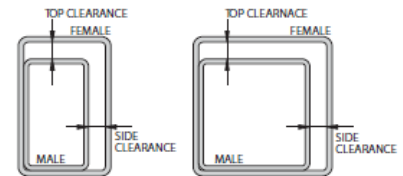
inside each other, or be locked with a pin, spot welded or fixed with wedges. This means, in some cases, a 'sloppy' fit may be suitable, while for others the tightest fit possible may be more appropriate.

- Having selected the most suitable clearance for your application, take the appropriate size of the male (inner) section from the right hand column, eg:

Female Section (outer)	Clearance mm	Male Section (inner)
75 x 75 x 3.0	4.0x4.0	65 x 65

Note that clearance is total available difference between member dimensions, not the gap on both sides.

- Where two telescoping sections are being used, thickness should be similar and will be determined by normal structural requirements. If a third section is to be used, consideration of both clearance and thickness within the size list available may be required.



- RHS has the obvious advantage that its shape prevents rotation of the sections. When pipe is used it may need to be fixed against twisting by welding or bolting.

- Press Fit. For short pieces with no need for separation or sliding an interference fit can be achieved using the available ductility of the steel.

Note: Sizes where clearance is shown as 0.0 will generally require press fit.

# Useful information - Telescoping CHS



DN	Female(outer) Size		Male(inner) Size		Minimum Clearance mm
	Quality	d <sub>o</sub> t	DN	d <sub>o</sub>	
15	Light	21.3 x 2.0	-	-	-
	Medium	2.6	-	-	-
	Heavy	3.2	-	-	-
20	Extra Light	26.9 x 2.0	15	21.3	0.4
25	Extra Light	33.7 x 2.0	20	26.9	1.6
	Light	2.6	20	26.9	0.4
	Medium	3.2	15	21.3	4.8
32	Heavy	4.0	15	21.3	3.2
	Extra Light	42.4 x 2.0	25	33.7	3.5
	Light	2.6	25	33.7	2.3
40	Medium	3.2	25	33.7	1.1
	Heavy	4.0	20	26.9	6.3
	Extra Light	48.3 x 2.3	32	42.4	0.1
50	Light	2.9	25	33.7	7.6
	Medium	3.2	25	33.7	7.0
	Heavy	4.0	25	33.7	5.4
	Extra Heavy	5.4	25	33.7	2.6
	Extra Light	60.3 x 2.3	40	48.3	6.4
60	Light	2.9	40	48.3	5.2
	Medium	3.6	40	48.3	3.8
	Heavy	4.5	40	48.3	2.0
	Extra Heavy	5.4	40	48.3	0.2

DN	Female(outer) Size		Male(inner) Size		Minimum Clearance mm
	Quality	d <sub>o</sub> t	DN	d <sub>o</sub>	
65	Extra Light	76.1 x 2.3	50	60.3	9.8
	Galtube Plus	2.6	50	60.3	9.2
	Light	3.2	50	60.3	8.0
	Medium	3.6	50	60.3	7.2
	Heavy	4.5	50	60.3	5.4
80	Extra Heavy	5.9	50	60.3	2.6
	Light	88.9 x 3.2	65	76.1	4.8
	Medium	4.0	65	76.1	3.2
	Heavy	5.0	65	76.1	1.2
90	Extra Heavy	5.9	50	60.3	15.3
	Light	101.6 x 2.6	80	88.9	5.6
	Medium	3.2	80	88.9	4.4
	Heavy	4.0	80	88.9	2.8
100	Extra Heavy	5.0	80	88.9	0.8
	Light	114.3 x 3.2	90	101.6	4.1
	Medium	3.6	90	101.6	3.3
	Heavy	4.5	90	101.6	1.5
125	Extra Heavy	5.4	80	88.9	12.6
	Light	139.7 x 3.0	100	114.3	16.9
	Medium	3.5	100	114.3	15.9
	Heavy	5.0	100	114.3	12.9
150	Extra Heavy	5.4	100	114.3	12.1
	Light	165.1 x 3.5	125	139.7	15.4
	Medium	5.0	125	139.7	12.4
	Heavy	5.4	125	139.7	11.6

## NOTE

Clearance = (AS1163 Min d<sub>o</sub> - 2t) - (AS1163 Max d<sub>o</sub>)

CHS is not a precision tube and all dimensions shown in the chart, although in accordance with the specifications, may vary marginally within the tolerance bands permitted.

Sizes shown in bold print are sizes that provide a clearance of less than 2.0mm. The internal weld bead will need to be considered when closer fits are indicated. Where telescoping over some length is desired, additional allowance may be needed for straightness. For tight fits it is recommended that some form of testing be carried out prior to committing material.

## HOW TO USE THIS CHART

- Select the size of female (or outer) member closest to your requirements from the left hand column.
- Depending on the application select the clearance required between the two members. Members may need to slide freely

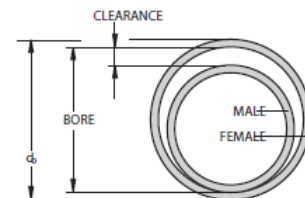
inside each other, or be locked with a pin, spot welded or fixed with wedges. This means, in some cases, a 'sloppy' fit may be suitable, while for others the tightest fit possible may be more appropriate. (See Note 6 Press Fit).

3. Having selected the most suitable clearance for your application, take the appropriate size of the male (inner) section from the centre column, eg:

Female Section (outer)	Male Section (inner)	Clearance mm
76.1x5.9	60.3	2.6

Note that clearance is total available difference between member dimensions, not the gap on both sides.

4. Where two telescoping sections are being used, thickness should be similar and will be determined by normal structural requirements. If a third section is to be used, consideration of both clearance and thickness within the size list available may be required.



5. Pipe may need to be fixed against twisting by welding or bolting.

6. Press Fit. For short pieces with no need for separation or sliding an interference fit can be achieved using the available ductility of the steel.

**For more information on any of the above, please call or email the team at Metfab and we will be more than happy to help you.**

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