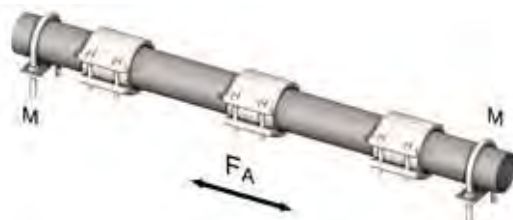


# STRAUB - Forces to avoid

**K**  
**Force**  
[N]

**Axial force  $F_A$**



Not absorbed by STRAUB FLEX  
• Sliding Support (M)

**K**  
**Load**  
[N]

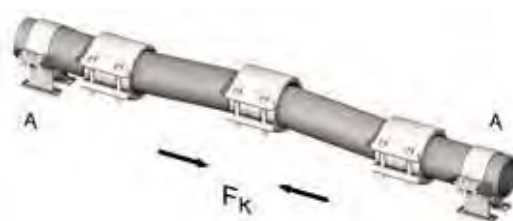
**Weight  $F_R$**



Not absorbed by STRAUB FLEX and GRIP  
• Anchor point (A)





**K**  
**Knee**  
[N]









**Axial buckling load  $F_K$**



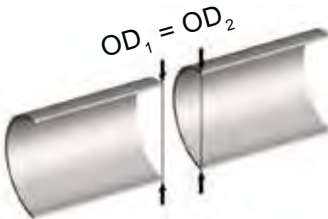
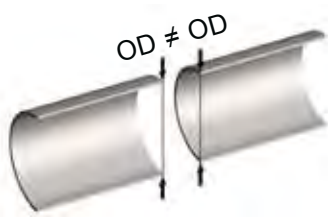
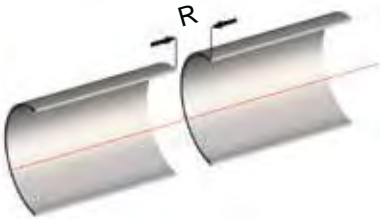
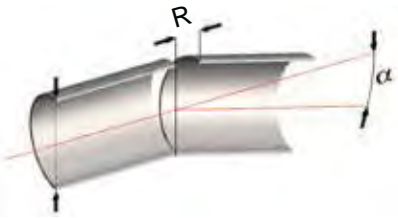

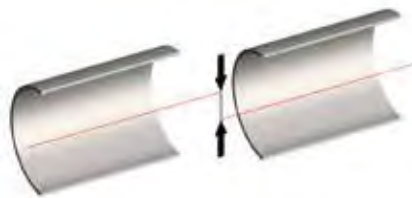
Not absorbed by STRAUB FLEX and GRIP  
• Anchor point (A)

## Installation Hints

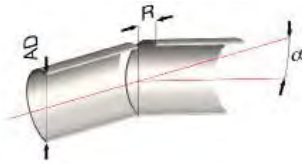
Type	Property	Representation	Symbol
<b>STRAUB-FLEX coupling</b>	Axially flexible		
<b>STRAUB-GRIP coupling</b>	Restraint, with anchoring ring		

<b>Hanger / Support</b>	Unrestricted to all sides		
<b>Sliding pipe guide</b>	Axially unrestricted	 <div> <p>without friction fit</p> <p>with lock nut</p> </div>	
<b>Mounting / Fixed point</b>	For accepting reaction forces from STRAUB-FLEX couplings	 <div> <p>with friction fit</p> <p>without lock nut</p> </div>	
<b>Anchor point</b>	For accepting the STRAUB-FLEX coupling stress and the stress resulting from internal force	 <div> <p>with friction fit</p> </div>	

## Fitting Tolerances / Approximate values

	<p><b>Clamping range</b></p> <p>Connecting two pipes with equal outside diameter. For clamping range see product datasheets.</p>																	
	<p><b>Different diameters</b></p> <p>Connecting two pipes with different outside diameters:</p> <ul style="list-style-type: none"><li>• up to 9 mm OD-difference with STRAUB-FLEX</li><li>• from 10 mm OD-difference with STRAUB-STEP-FLEX</li></ul>																	
	<p><b>Setting gap between pipe ends R</b></p> <p>Setting gap of 5 mm is recommended (see next page)</p>																	
	<p><b>Angular deflection α</b></p> <p>Setting gap between pipe ends due to angular deflection</p> <table border="1"><thead><tr><th colspan="2">Outside diameter OD [mm]</th><th rowspan="2">α [degree]</th></tr><tr><th>GRIP</th><th>FLEX/OPEN-FLEX</th></tr></thead><tbody><tr><td>up to 60.3</td><td>up to 60.3</td><td>5</td></tr><tr><td>from 66.0</td><td>from 66.0</td><td>4</td></tr><tr><td>from 219.1</td><td>from 219.1</td><td>2</td></tr><tr><td>up to 609.6</td><td>from 812.8</td><td>1</td></tr></tbody></table>	Outside diameter OD [mm]		α [degree]	GRIP	FLEX/OPEN-FLEX	up to 60.3	up to 60.3	5	from 66.0	from 66.0	4	from 219.1	from 219.1	2	up to 609.6	from 812.8	1
Outside diameter OD [mm]		α [degree]																
GRIP	FLEX/OPEN-FLEX																	
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	<p><b>Axial movement I</b></p> <p>STRAUB-FLEX and STRAUB-OPEN-FLEX couplings act as expansion joints within stated limits (see page 25)</p> <p>Reaction for STRAUB-FLEX couplings:</p> <table border="1"><thead><tr><th>Ø in mm</th><th>101.6</th><th>168.0</th><th>219.1</th><th>355.6</th><th>558.8</th><th>812.8</th></tr></thead><tbody><tr><td>N</td><td>3800</td><td>4800</td><td>5600</td><td>7300</td><td>9800</td><td>12500</td></tr></tbody></table>	Ø in mm	101.6	168.0	219.1	355.6	558.8	812.8	N	3800	4800	5600	7300	9800	12500			
Ø in mm	101.6	168.0	219.1	355.6	558.8	812.8												
N	3800	4800	5600	7300	9800	12500												
	<p><b>Axial misalignment</b></p> <p>Connecting of two pipes with axial misalignment. Maximum allowed 1% of outside diameter (max. 3 mm)</p>																	

## Setting gap between pipe ends due to angular deflection $\alpha$



OD Ø mm	$\alpha$ in degrees						
	1	2	4	6	8	10	12
R mm	R mm	R mm	R mm	R mm	R mm	R mm	R mm
26.9	0.5	1	2	3	4	5	6
30.0	0.5	1	2	3	4	5	6
33.7	0.5	1	2	3	4	6	7
38.0	1	1	3	4	5	7	8
40.0	1	2	3	4	6	7	8
42.4	1	2	3	4	6	7	9
44.5	1	2	3	5	6	8	9
48.3	1	2	3	5	7	8	10
50.0	1	2	4	5	7	9	11
54.0	1	2	4	6	8	9	11
57.0	1	2	4	6	8	10	12
60.3	1	2	4	6	8	11	13
63.0	1	2	4	7	9	11	13
75.0	1	3	5	8	11	13	16
76.1	1	3	5	8	11	13	16
84.0	2	3	6	9	12	15	18
88.9	2	3	6	9	12	16	19
90.0	2	3	6	9	13	16	19
104.0	2	4	7	11	15	18	22
108.0	2	4	8	11	15	19	23
110.0	2	4	8	12	15	19	23
114.3	2	2	8	12	16	20	24
125.0	2	2	9	13	17	22	26
129.0	2	5	9	14	18	23	27
133.0	2	5	9	14	19	23	28
139.7	2	5	10	15	20	24	29
140.0	2	5	10	15	20	24	29
154.0	3	5	11	16	22	27	32
159.0	3	6	11	17	22	28	33
160.0	3	6	11	17	22	28	33
168.3	3	6	12	18	24	30	35

OD Ø mm	$\alpha$ in degrees					
	1	2	3	4	6	8
R mm	R mm	R mm	R mm	R mm	R mm	R mm
180.0	3	6	9	13	19	25
200.0	4	7	11	14	21	28
219.1	4	8	12	15	23	31
244.5	4	9	13	17	26	34
250.0	4	9	13	17	26	35
267.0	5	9	14	19	28	37
273.0	5	10	14	19	29	38
304.0	5	11	16	21	32	42
323.9	6	11	17	23	34	45
355.6	6	12	19	25	37	50
406.4	7	14	21	28	43	57
457.2	8	16	24	32	48	
508.0	9	18	27	36	53	
559.0	10	20	29	39	59	
575.0	10	20	30	40		
609.6	11	21	32	43		
711.2	12	25	37	50		
762.0	13	27	40	53		
812.8	14	28	43	57		
914.4	16	32	48			
1016.0	18	36	53			
1117.6	20	39	59			
1219.2	21	43				
1320.8	23	46				
1422.4	25	50				
1524.0	27	53				
1625.6	28	57				
1727.2	30					
1828.8	32					
1930.4	34					
2032.0	36					

Gaps between pipe ends are created by angular deflection, inaccurate assembly and changes in length. This gap must not exceed the value R (R = pipe end gap / may be obtained from product datasheet).

Using a strip insert (also refer to page 43), the pipe and gap can be enlarged. This maximum value depends on the design of each coupling type and may be obtained from the relevant product datasheet.