



Calculation of pinned couplings

- i Calculation without errors.
- ii Project information

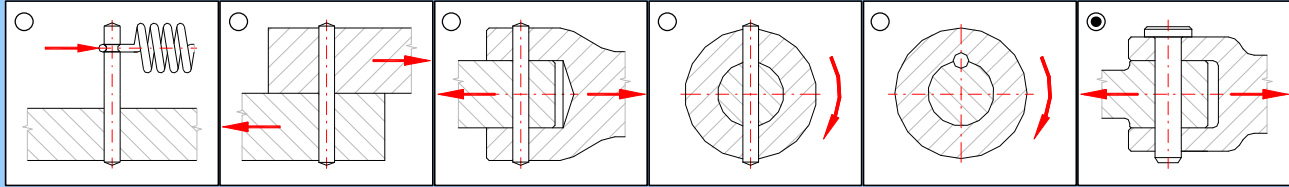
Input section

1.0 Loading and basic parameters of the coupling

1.1 Calculation units

Imperial (lb, in, HP...)

1.2 Coupling type : Clevis pin for rotating rod-clevis connection. Loading with transversal bending force.



1.3 Connection loading

1.4 Transferred power	P	10,00	[HP]
1.5 Shaft speed	n	1500,0	[/min]
1.6 Torque	T	35,01	[lb ft]
1.7 Acting force	F	250,0	[lb]
1.8 Operational and mounting parameters of the coupling			
1.9 Type of loading		Static load	▼
1.10 Type of pin		Full pin	▼
1.11 Type of fit		Running fit	▼
1.12 Desired safety	S _f	1,70	

1.13 Clevis material (min. tensile strength)

1.14	A...Structural steel (50)		<input checked="" type="checkbox"/>
1.15 Ultimate tensile strength	S _{Umin}	50,0	[ksi]
1.16 Permissible pressure (fixed fit)	p _A	13,0	[ksi]
1.17 Permiss. pressure (running fit)	p _A	4,5	[ksi]
1.18 Rod material (min. tensile strength)			
1.19	F...High-grade and alloy steel (100)		<input checked="" type="checkbox"/>
1.20 Ultimate tensile strength	S _{Umin}	100,0	[ksi]
1.21 Permissible pressure (fixed fit)	p _A	29,0	[ksi]
1.22 Permiss. pressure (running fit)	p _A	5,0	[ksi]

2.0 Design of coupling dimensions

2.1 Pin selection, coupling parameters

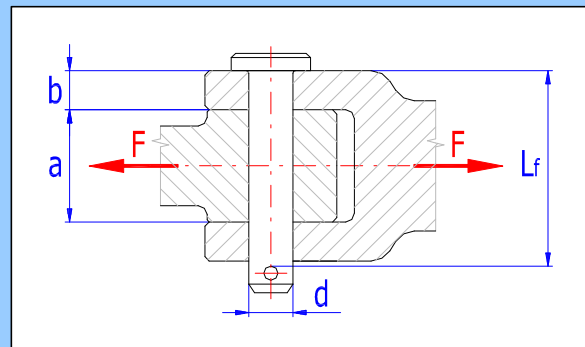
2.2	ANSI B18.8.1 - Clevis pins with head and split pin hole		▼
2.3 Allowable range of pin diameters		0,1875 ~ 1	
2.4 Number of pins in connection		1	▼
2.5 Reduction factors			<input checked="" type="checkbox"/>
2.6 Load distribution factor	K _L	1,00	
2.7 Service factor (pressure)	K _{Sp}	1,00	
2.8 Service factor (bending, shearing)	K _{Sb}	1,00	

2.9 Pin material (min. tensile strength)

2.10	G...Surface-hardened steel (95) [HRC 45-53]		<input checked="" type="checkbox"/>
2.11 Ultimate tensile strength	S _{Umin}	95,0	[ksi]
2.12 Permissible pressure (fixed fit)	p _A	32,0	[ksi]
2.13 Permiss. pressure (running fit)	p _A	6,0	[ksi]
2.14 Permissible shear stress	τ _A	14,5	[ksi]
2.15 Permissible bending stress	σ _A	23,0	[ksi]

2.16 Coupling dimensions

2.17 Rod width	a	1,0000	[in]
2.18 Clevis width	b	0,5000	[in]
2.19 Recommended pin diameter		0,59 ~ 0,67	[in]
2.20 Searching for a suitable pin		< Search >	
2.21 Pin diameter	d	0,5000 1/2	[in]
2.22 Allowable range of pin lengths		1,25 ~ 3	[in]
2.23 Pin length	L	2,2500 2,25	[in]
2.24 Min. functional length of pin	L _{fmin}	2	[in]
2.25 Functional length of pin	L _f	2,0170	[in]



3.0 Strength checks of the coupling

3.1 Pin check for shearing

3.2 Permissible shear stress	τ _A	14,5	[ksi]
3.3 Comparative stress	τ	0,6	[ksi]
3.4 Safety		22,78	

3.9 Check of contact pressure : Pin - Clevis

3.10 Permissible pressure	p _A	4,5	[ksi]
3.11 Comparative pressure	p	0,5	[ksi]
3.12 Safety		9,00	

3.5 Pin check for bending

3.6 Permissible bending stress	σ _A	23,0	[ksi]
3.7 Comparative stress	σ	5,1	[ksi]
3.8 Safety		4,52	

3.13 Check of contact pressure : Pin - Rod

3.14 Permissible pressure	p _A	5,0	[ksi]
3.15 Comparative pressure	p	0,5	[ksi]
3.16 Safety		10,00	

4.0 Graphical output, CAD systems

4.1 2D drawing output to:	DXF File	▼
4.2 2D Drawing scale	Automatic	▼

