

Question Content

A coil chain of a crane required to carry a maximum load of 50 kN, find diameter of the line stock, if the permissible tensile stress in the link material is need not exceed 75MPa.

A hydraulic press exerts a total load of 3.5 MN. This load is carried by two steel rods, supporting the upper head of the press. If the safe stress is 85 Mpa and $E= 210 \text{ KN/mm}^2$, find diameter of rods
The piston rod of a steam engine is 50 mm in diameter and 600 mm long. The diameter of the piston is 400 mm and the maximum steam pressure is 0.9 N/mm^2 . Find maximum load acting on the
Calculate the force required to punch a circular blank of 60 mm diameter in a plate of 5 mm thick.
The ultimate shear stress of the plate is 350 N/mm^2

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Selection of factor of safety depends on

A steel bar 2.4 m long and 30 mm square is elongated by a load of 500 KN. If poisson's ratio is 0.25, find strain. Take $E = 0.2 \times 10^6 \text{ N/mm}^2$

Which is not types of rigid coupling

Which is not types of flexible coupling

Rotating machine element which is used to transmit power from one place to another ia called

Maximum permissible working stress in tension or compression for shaft without allowance may be taken as (as per ASME)

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A line shaft rotating at 200 r.p.m. is to transmit 20 KW. The shaft may be assumed to be made of mild steel with an allowable shear stress of 42 Mpa. Determine the diameter of the shaft

Option 1	Option 2	Option 3	Option 4
29.13 mm	40 mm	42 mm	50 mm
170 mm	162 mm	174 mm	180 mm
113110 N	121305 N	111556N	None of these
340.24 KN	305.56 KN	267.32 KN	329.91 KN
30.1 Mpa	35 Mpa	39.7 Mpa	44.78 Mpa
60 Mpa	77 Mpa	84 Mpa	54 Mpa
70%	66%	75%	55%
25%	30%	34%	40%
The reliability of applied load	The certainty as to extract mode of failure	The extent of localised stresses	All of these
$3.4 * 10^{-3}$	$4.4 * 10^{-3}$	$5.1 * 10^{-2}$	$2.1 * 10^{-3}$
Sleeve	Bushed pin type	Clamp	Flange
Split-muff	Bushed pin type	Universal	Oldham
Keys	Coupling	Shaft	Riveted joints
140 Mpa	130 Mpa	125 Mpa	112 Mpa
90 Mpa	84 Mpa	95 Mpa	104 Mpa
50 Mpa	34 Mpa	42 Mpa	58 Mpa
60 Mpa	56 Mpa	65 Mpa	71 Mpa
55 mm	62 mm	48.7 mm	39.3 mm