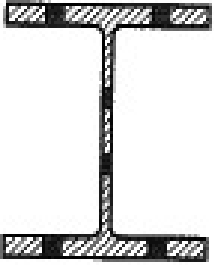# HP-35s Calculator Program –
MAXIMUM ALLOWABLE TENSILE FORCE ON BOLTED ELEMENT

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Line	Instruction	Process	User Instruction
T001	LBL T	Establishing the library	
T002	CLSTK		
T003	FS? 10		
T004	GTO T008		
T005	SF 1		
T006	SF 10		
T007	GTO T009		
T008	CF 10		
T009	STEEL TENS FORCE		Key in using EQN, RCL B, RCL U, etc
T010	PSE		
T011	ENTER GROS A		
T012	PSE		
T013	INPUT G		
T014	NO BOLTS WEB	Number of Bolts on the Web of Section	
T015	PSE		
T016	INPUT N	Enter the number of bolts on Web	
T017	NO BOLTS FLANGE	Number of Bolts on the Flanges of the Section (Total)	
T018	PSE		
T019	INPUT B	Enter the number of bolts on Flanges	
T020	BOLT SIZE		
T021	PSE		Nomenclature:
T022	INPUT D	Enter bolt diameter	
T023	8	Calculating hole diameter	A = Cross Sectional Area
T024	1/x		B = Number of Bolts on Flanges
T025	+		D = Diameter of hole for bolt
T026	STO D		F = Flange Thickness
T027	WEB THICKNESS		G = Gross Cross Sectional Area
T028	PSE		L = Tensile yield capacity
T029	INPUT W		N = Number of Bolts on Web
T030	FLANGE THICKNESS		P = ΦPn (Controlling Capacity
T031	PSE		between *Rupture* and *Yield* in
T032	INPUT F		Tensile Load)
T033	SHEAR LAG COEFF		R = Tensile rupture capacity
T034	PSE		U = Shear Lag Coefficient (ASCE
T035	TBL D31 16.1-29		TBL D31 16.1-29) (Initially)
T036	INPUT U	Enter Value of Shear Lag Coefficient per AISC 13 Table	U = Fu (Use of same letter variable
T037	CLSTK	D.31 page 16.1-29	as Shear Lag Coeff. but the former is
T038	RCL D		no longer needed at this point)
T039	RCL W		Y = Fy
T040	×		
T041	RCL N		
T042	×		
T043	+ / -		
T044	RCL D		
T045	RCL F		
T046	×		
T047	RCL B		
T048	×		
T049	+ / -		
T050	+		
T051	RCL G		
T052	+		
T053	RCL U		
T054	×		
T055	STO A		
T056	ENTER FY	Specified Minimum Yield Stress	
T057	PSE		
T058	INPUT Y	Enter value Fy per AISC Manual	
T059	ENTER FU	Specified Minimum Tensile Strength	
T060	PSE		
T061	INPUT U	Enter value Fu per AISC Manual	
T062	EFFECTIVE AREA		

T063	PSE		
T064	VIEW A		
T065	CLSTK		
T066	RCL G		
T067	RCL Y		
T068	×		
T069	0.9		
T070	×		
T071	STO L		
T072	TENS YIELD		
T073	PSE		
T074	VIEW L		
T075	RCL A		
T076	RCL U		
T077	×		
T078	0.75		
T079	×		
T080	STO R		
T081	TENS RUPT		
T082	PSE		
T083	x≥y?		
T084	R↓		
T085	STO P		
T086	CTRL PHI PN		
T087	PSE		
T088	VIEW P		
T089	0		
T090	x< >y		
T091	FS? 1		
T092	CF 10		
T093	STOP		
T094	RTN		

Program for HP35s that Solves for Maximum Allowable Tensile Force on Bolted Steel Element