

PV Calculation Worksheet

PV (Pressure x Velocity) is a method of calculating bearing capacity.

$$\left(\frac{F \text{ (load on bearing)}}{A \text{ (Journal diameter x bearing LTB)}} \right) = P \text{ (from chart below)} \times V \text{ (operational PV of bearing)} = PV \text{ (NTE PV limit of material from box below)}$$

Calculate **P** (Pressure) by figuring F/A (force divided by area)

F = load on the bearing
 A = journal size x length thru bore (LTB)

Use this chart to determine **V** (Velocity):

- 1) Find row that reflects speed
- 2) Find column that reflects journal size
- 3) The point where these two meet is **V** for this application

PV limits of EDT bearing materials are:		
PA	at	1,000
AA	at	2,000
NA	at	6,000
QB	at	50,000
QF	at	60,000
MA	at	100,000

Bearing / Journal Surface Speed Calculations (V)

	1500	197	294	393	492	590	786	983	1179	1376	1572
	1000	131	197	262	328	393	524	655	786	917	1048
	900	118	177	236	295	354	472	590	708	826	944
	800	105	157	210	262	315	420	524	628	734	838
	700	92	138	184	230	276	368	459	551	642	734
	600	79	118	158	197	236	316	393	472	551	629
	550	73	108	145	180	217	288	361	432	505	577
	500	66	98	131	164	197	262	328	393	459	524
	450	59	88	118	148	177	236	295	354	413	468
	400	53	79	105	131	158	210	262	315	367	420
	350	46	69	92	115	138	184	230	276	321	369
	300	40	59	79	98	118	158	197	236	276	315
	250	33	49	66	82	99	132	164	197	230	262
	200	27	39	53	66	79	106	131	158	184	210
	175	23	35	46	58	69	92	115	138	161	184
	150	20	30	40	49	59	80	99	118	138	158
	100	14	20	27	33	40	53	66	80	92	105
	75	10	15	20	25	30	40	50	60	69	79
	50	7	10	14	16	20	26	33	40	46	53
	25	4	5	7	8	10	13	17	20	23	26
		½	¾	1	1¼	1½	2	2½	3	3	4
		Journal Size (diameter in inches)									



Marginal - double check load (P) before selecting a plane bearing



Not recommended to use plane bearings