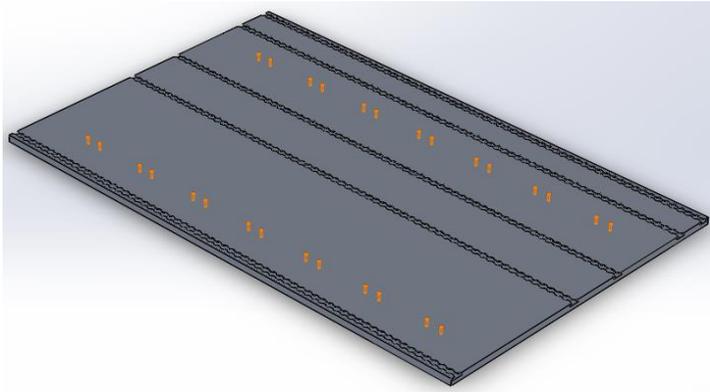


Bodenplatte CL-604



	[in]	[mm]	Reference
W	40.9	1040	see Illustration solidworks S.111
t₁	0.984	25	see Illustration solidworks S.111
D_{fast}	0.1875	4.8	Lockbolt BACB30GY
D_{ave}	0.194	5	70-10-00, Figure I, Table IV
N_{fastener}	28		

	[ksi]	[MPa]	Reference
F_{bry_7075-T6}	117	807	MMPDS Table 3.7.7.0(b ₂)
F_{bru_7075-T6}	145	1000	
F_{bru_7075-T6}	44	303	

Joint Bearing or fastener Shear allowable

	[lb]	[N]	Reference
P_{allow (0.984, 7075-T6, SS)}	2690	11966	70-10-00 Figure 5, Table III
1.5 x P_{bry}	2931	13038	MMPDS Table 8.1.2.1(a) ¹
P_{bru}	2421	10769	

¹ P_{brg} = lesser of F_{ubs} x F_{bry}/100 x 1.5 or F_{ubs} x F_{bru}/100

	[lb]	[N]	Reference
P_{allowable (Joint)}	29052	129229	P _{allowable (fastener)} x N _{fastener}

Net Tension allowable

	[ksi]	[ksi]	[MPa]	Reference
$F_{tu (7075-T6_L)}$		77	531	MMPDS Table 3.7.7.0(b ₂)
$1.5 \times F_{ty (7075-T6_L)}$	70	105	724	MMPDS Table 3.7.7.0(b ₂)

	[in ²]	[mm ²]	Reference
$A_{net 7075-T6}$	40.06	25845	$t_1 \times (W-D_{fast})$

	[lb]	[N]	Reference
$P_{net 7075-T6}$	3084620	13721007	$F_{du} \times A_{net}$

Tear Out Failure

	[ksi]	[MPa]	Reference
$F_{su 7075-T6}$	325557	2244648	$F_{su} \times t \times (2e - 0.766D)$

Joint Load Capability *(Lesser of Joint Bearing / Fastener Shear Allowable or Net Tension Failure)*

	[lb]	[N]	Critical Failure Mode
P_{cap}	29052	129229	(bearing strength of 7075-T6 in strap)

Factor of Safety	4.5	$P_{cap} / 26487N + 2207N$
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Die Bodenplatte muss das Eigengewicht inkl. des Gewichts der Transportkiste mit der Belastung von 9g aushalten.
 Eigengewicht max. 25kg x 9.81 x 9 = 2207N
 Transportkiste max. 300kg x 9.81 x 9 = 26487N