SILO & HOPPER ENGINEERING

RECTANGULAR HOPPER SIDE PLATE THICKNESS

INPUT DATA 계산실행 ***V1.0***

* DESCRIPTION	ITEM NO.	
* DESIGN TEMPERATURE	0	°F
* PLATE MATERIAL	SS400	
* STIFFFENER MATERIAL	SS400	
* SELECT STIFFENER	ㄱ75x75x6	
* LENGTH OF SIDE PLATE, "W"	2000	mm
* DISTANCE BETWEEN STIF. "W1"	400	mm
* HIGHT OF SIDE PLATE, "H"	2800	mm
* WORKING LEVEL OF CONTENTS	2560	mm
* USED THICKNESS	8	mm
* CORROSION ALLOWANCE	1.6	mm
* SPECIFIC GRAVITY OF SOLID	2.1	

RESULT OF CALCULATION

* Max. Allowable distance between Stiffeners	485.9	mm	OK!
* hs (Height of Liquid level to Top of plate)	228.6	mm	

* Required Number & Actual Space of stiffener,mm

Q'TY	H1	H2	H3	H4	H5
2	1,260.0	840.0	700.0		

* Location of Stiffener from the Top

unit	H1	H2	H3	H4	H5
mm	1,260.0	2,100.0	2,800.0		

* Unit Load upon each space (wn=0.036*G*hn^2/2)

	H1	H2	H3	H4	H5
Kg/cm	16.6	46.1	82.0		

* Reaction load with pointed on each location (wn=0.7*wn)

	H1	H2	H3	H4	H5
Kg/cm	11.6	32.3	57.4		

* Required Moment of innertia, Ireq.=1.25*Rn*(W1^3/E)

	H1	H2	H3	H4	H5
cm^4	0.5	1.3	2.2		

* Moment of Innertia of Stiffener ,cm^4

Judge	H1	H2	H3	H4	H5
OK!	47.0	47.0	47.0		

* Pressure of Solid

	H1	H2	H3	H4	H5
Kg/cm^2	0.13	0.22	0.29		

* Ratio of Width and Height (Hn/W1)

H1/W1	H2/W1	H3/W1	H4/W1	H5/W1
3.2	2.1	1.8		

* Factor depending on ration Hn/W1

a1	a2	a3	a4	a5
0.059	0.045	0.040		

* Required thickness, treq=2.45*W1*SQRT(an*pn/S) + C.A

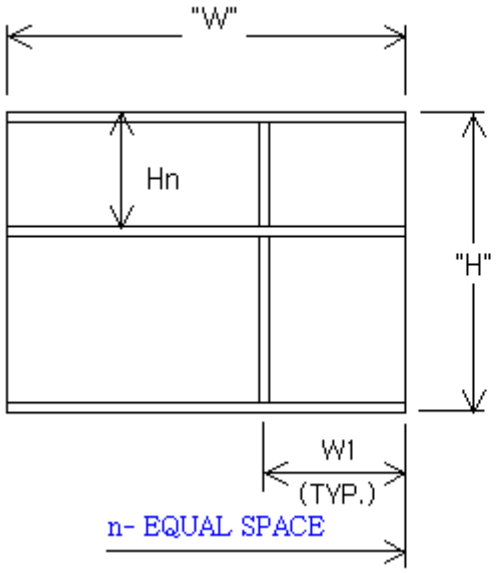
	treq1	treq2	treq3	treq4	treq5
mm	4.20	4.53	4.79		

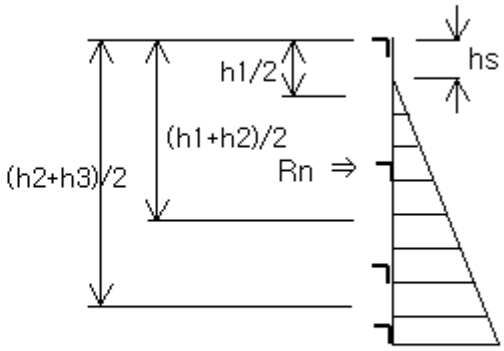
* Used thickness,mm

Judge	Used1	Used2	Used3	Used4	Used5
OK!	8	8	8		

* Deflection limit of side plate, tmin/2 3.2 ,mm

Judge	y1	y2	y3	y4	y5
OK!	0.73	0.94	1.11		





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