

Cross sectional data - Areco TP/VP20

Table 1

Sheet thickness, nominal	t_{nom}	mm	0,40	0,50	0,60	0,65	0,70
Sheet thickness, in calculation	t_{ber}	mm	0,342	0,451	0,548	0,597	0,646
Yield point	f_{ty}	N/mm ²	280	280	280	350	350
Mass	m	kg/m	3,90	4,60	5,45	5,90	6,40
Dead weight including side overlap	g	kN/m ²	0,039	0,046	0,055	0,059	0,064
Bearing resistance $l_s=50$ mm	R_d	kN/m	11,4	18,8	26,7	34,8	40,0
Bearing resistance $l_s=100$ mm	R_d	kN/m	15,1	24,7	34,8	45,2	51,9
Narrow flange under pressure	M_{ld}	kNm/m	0,48	0,71	0,95	1,28	1,44
2:nd moment of area	I_{def}	mm ⁴ /mm	22	31	40	43	48
Wide flange under pressure	M_{ld}	kNm/m	0,48	0,71	0,95	1,28	1,44
2:nd moment of area	I_{def}	mm ⁴ /mm	22	31	40	43	48

Data for stressed skin calculations - Areco TP/VP20

Table 2

Thickness	Shear buckling			End support		
	Flange	Web	Global	Framework bending effects	Reaction of purlins to stressed skin effect	Tensile force in fasteners
t_{nom}	V_f	V_w	$L^2 V_{gd}$	V_d	R_d/V	F_{c2}/V
mm	kN/m	kN/m	kN/m	kN/m		m
0,40	29,6	43,5	16	7,4	0,46	23
0,50	51,5	70,5	24	12,2	0,46	23
0,60	74,2	85,7	32	17,3	0,46	23
0,65	100,9	116,7	36	25,3	0,46	23
0,70	109,3	126,2	41	29,1	0,46	23

Foot traffic recommended by Areco

Table 3

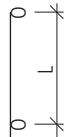
Pitch	Division into sections	0,50	0,60	0,65	0,70
$\leq 14^\circ$	Single section	0,50	1,20	1,40	1,70
	Multiple section	0,60	1,90	2,20	2,50
$\geq 14^\circ$	Single section	0,70	1,80	2,30	2,50
	Multiple section	0,80	2,40	3,20	3,40

Areco TP20

ROOF

Maximum loads in kN/m²

Table 4

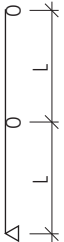
Thickness (mm)	Limitations	Span L (m)										Bearing combination
		0,60	0,90	1,20	1,50	1,80	2,10	2,40	2,70	3,00	3,30	
0,50	Moment	14,410	6,404	3,602	2,305	1,601	1,176	0,901	0,712	0,576	0,476	 SHEET LOADED ON TWO SUPPORT
	Deflection	25,770	7,637	3,222	1,649	0,955	0,601	0,403	0,283	0,206	0,155	
	Wind suction	15,850	7,045	3,963	2,536	1,761	1,294	0,991	0,783	0,634	0,524	
0,60	Moment	19,220	8,540	4,804	3,075	2,135	1,569	1,201	0,949	0,769	0,635	
	Deflection	33,270	9,857	4,158	2,129	1,232	0,776	0,520	0,365	0,266	0,200	
	Wind suction	21,140	9,394	5,284	3,382	2,349	1,726	1,321	1,044	0,845	0,699	
0,65	Moment	25,850	11,490	6,461	4,135	2,872	2,110	1,615	1,276	1,034	0,854	
	Deflection	35,950	10,650	4,494	2,301	1,332	0,839	0,562	0,395	0,288	0,216	
	Wind suction	28,430	12,640	7,107	4,549	3,159	2,321	1,777	1,404	1,137	0,940	
0,70	Moment	29,040	12,910	7,260	4,646	3,227	2,371	1,815	1,434	1,162	0,960	
	Deflection	39,850	11,810	4,982	2,551	1,476	0,929	0,623	0,437	0,319	0,240	
	Wind suction	31,940	14,200	7,986	5,111	3,549	2,608	1,997	1,578	1,278	1,056	
0,50		0,60	0,90	1,20	1,50	1,80	2,10	2,40	2,70	3,00	3,30	 SHEET LOADED ON THREE SUPPORT
	Bearer 50	12,660	6,244	3,717	2,406	1,659	1,212	0,925	0,728	0,589	0,486	
	Bearer 100	16,910	7,437	4,021	2,515	1,721	1,251	0,950	0,746	0,601	0,495	
	Deflection	62,080	18,400	7,761	3,973	2,299	1,448	0,97	0,681	0,497	0,373	
	Wind suction	13,920	6,869	4,089	2,711	1,929	1,443	1,120	0,894	0,731	0,608	
0,60	Bearer 50	17,340	8,494	5,035	3,208	2,212	1,617	1,233	0,971	0,785	0,647	
	Bearer 100	23,110	9,918	5,363	3,354	2,294	1,668	1,267	0,995	0,802	0,660	
	Deflection	80,130	23,740	10,020	5,128	2,968	1,869	1,252	0,879	0,641	0,482	
	Wind suction	19,070	9,343	5,538	3,663	2,602	1,943	1,506	1,202	0,981	0,816	
0,65	Bearer 50	23,000	11,310	6,718	4,315	2,975	2,175	1,659	1,307	1,056	0,871	
	Bearer 100	30,620	13,340	7,213	4,511	3,086	2,243	1,704	1,338	1,079	0,888	
	Deflection	86,610	25,660	10,830	5,543	3,208	1,020	1,353	0,950	0,693	0,521	
	Wind suction	25,300	12,440	7,389	4,894	3,479	2,600	2,017	1,610	1,315	1,094	
0,70	Bearer 50	26,120	12,800	7,594	4,848	3,343	2,443	1,864	1,468	1,186	0,979	
	Bearer 100	34,730	14,990	8,104	5,069	3,468	2,521	1,915	1,504	1,212	0,998	
	Deflection	96,000	28,440	12,000	6,144	3,555	2,239	1,500	1,053	0,768	0,577	
	Wind suction	28,730	14,080	8,354	5,527	3,926	2,933	2,274	1,815	1,482	1,233	
0,50		0,60	0,90	1,20	1,50	1,80	2,10	2,40	2,70	3,00	3,30	 SHEET LOADED ON FOUR SUPPORT
	Bearer 50	15,370	7,637	4,566	3,020	2,081	1,52	1,159	0,913	0,737	0,608	
	Bearer 100	21,010	9,449	5,086	3,173	2,167	1,573	1,194	0,937	0,755	0,621	
	Deflection	48,750	14,440	6,093	3,120	1,805	1,137	0,762	0,535	0,390	0,293	
	Wind suction	16,900	8,401	5,023	3,341	2,382	1,784	1,387	1,108	0,906	0,755	
0,60	Bearer 50	21,090	10,400	6,194	4,028	2,775	2,027	1,546	1,217	0,983	0,811	
	Bearer 100	28,780	12,600	6,782	4,231	2,890	2,098	1,592	1,250	1,007	0,829	
	Deflection	62,640	18,640	7,865	4,027	2,330	1,467	0,983	0,690	0,503	0,378	
	Wind suction	23,200	11,440	6,813	4,518	3,215	2,405	1,866	1,491	1,218	1,014	
0,65	Bearer 50	27,950	13,840	8,258	5,417	3,732	2,727	2,079	1,637	1,323	1,091	
	Bearer 100	38,070	16,950	9,122	5,691	3,886	2,822	2,142	1,681	1,354	1,114	
	Deflection	68,000	20,150	8,500	4,352	2,519	1,586	1,063	0,746	0,544	0,409	
	Wind suction	30,740	15,230	9,084	6,033	4,298	3,217	2,498	1,996	1,632	1,359	
0,70	Bearer 50	31,750	15,680	9,340	6,087	4,194	3,064	2,336	1,839	1,486	1,226	
	Bearer 100	43,230	19,040	10,250	6,394	4,367	3,171	2,407	1,889	1,522	1,252	
	Deflection	75,380	22,330	9,422	4,824	2,792	1,758	1,178	0,827	0,603	0,453	
	Wind suction	34,930	17,250	10,270	6,816	4,852	3,630	2,817	2,250	1,839	1,531	

Explanations

Moment Bearing capacity in field, calculated for safety class 2
 Bearer 50 Bearing capacity for intermediate bearer with $l_b = 50$ mm, calculated for safety class 2
 Bearer 100 Bearing capacity for intermediate bearer with $l_b = 100$ mm, calculated for safety class 2
 Deflection Deflection $L/90$
 Wind suction Bearing capacity for upwardly directed wind load, calculated for safety class 1

Maximum loads in kN/m²

Table 5

Thickness (mm)	Limitations	Span L (m)										Bearing combination
		0,60	0,90	1,20	1,50	1,80	2,10	2,40	2,70	3,00	3,30	
0,40	Moment	10,570	4,698	2,642	1,691	1,174	0,863	0,661	0,522	0,423	0,349	 SHEET LOADED ON TWO SUPPORT
	Deflection	17,910	5,307	2,239	1,146	0,663	0,418	0,28	0,197	0,143	0,108	
	Wind suction	10,570	4,698	2,642	1,691	1,174	0,863	0,661	0,522	0,423	0,349	
0,50	Moment	15,850	7,045	3,963	2,536	1,761	1,294	0,991	0,783	0,634	0,524	
	Deflection	25,770	7,637	3,222	1,649	0,955	0,601	0,403	0,283	0,206	0,155	
	Wind suction	15,850	7,045	3,963	2,536	1,761	1,294	0,991	0,783	0,634	0,524	
0,60	Moment	21,140	9,394	5,284	3,382	2,349	1,726	1,321	1,044	0,845	0,699	
	Deflection	33,270	9,857	4,158	2,129	1,232	0,776	0,520	0,365	0,266	0,200	
	Wind suction	21,140	9,394	5,284	3,382	2,349	1,726	1,321	1,044	0,845	0,699	
0,65	Moment	28,430	12,640	7,107	4,549	3,159	2,321	1,777	1,404	1,137	0,940	
	Deflection	35,950	10,650	4,494	2,301	1,332	0,839	0,562	0,395	0,288	0,216	
	Wind suction	28,430	12,640	7,107	4,549	3,159	2,321	1,777	1,404	1,137	0,940	
0,70	Moment	31,940	14,200	7,986	5,111	3,549	2,608	1,997	1,578	1,278	1,056	
	Deflection	39,850	11,810	4,982	2,551	1,476	0,929	0,623	0,437	0,319	0,240	
	Wind suction	31,940	14,200	7,986	5,111	3,549	2,608	1,997	1,578	1,278	1,056	
0,40	Bearer 50	8,888	4,434	2,657	1,765	1,217	0,889	0,678	0,534	0,432	0,356	 SHEET LOADED ON THREE SUPPORT
	Bearer 100	11,910	5,455	2,950	1,845	1,262	0,917	0,697	0,547	0,441	0,363	
	Deflection	43,140	12,780	5,393	2,761	1,598	1,006	0,674	0,473	0,345	0,259	
	Wind suction	8,888	4,434	2,657	1,770	1,263	0,947	0,736	0,589	0,482	0,401	
0,50	Bearer 50	13,920	6,869	4,089	2,646	1,824	1,334	1,017	0,801	0,647	0,534	
	Bearer 100	18,600	8,181	4,423	2,767	1,893	1,376	1,045	0,821	0,662	0,545	
	Deflection	62,080	18,400	7,761	3,973	2,299	1,448	0,97	0,681	0,497	0,373	
	Wind suction	13,920	6,869	4,089	2,711	1,929	1,443	1,120	0,894	0,731	0,608	
0,60	Bearer 50	19,070	9,343	5,538	3,529	2,433	1,778	1,356	1,069	0,863	0,712	
	Bearer 100	25,430	10,910	5,899	3,689	2,524	1,835	1,394	1,094	0,882	0,726	
	Deflection	80,130	23,740	10,020	5,128	2,968	1,869	1,252	0,879	0,641	0,482	
	Wind suction	19,070	9,343	5,538	3,663	2,602	1,943	1,506	1,202	0,981	0,816	
0,65	Bearer 50	25,300	12,440	7,389	4,746	3,272	2,392	1,824	1,437	1,161	0,958	
	Bearer 100	33,680	14,670	7,934	4,962	3,395	2,468	1,874	1,472	1,187	0,977	
	Deflection	86,610	25,660	10,830	5,543	3,208	1,020	1,353	0,950	0,693	0,521	
	Wind suction	25,300	12,440	7,389	4,894	3,479	2,600	2,017	1,610	1,315	1,094	
0,70	Bearer 50	28,730	14,080	8,354	5,333	3,677	2,688	2,050	1,615	1,305	1,076	
	Bearer 100	38,200	16,490	8,915	5,576	3,814	2,773	2,106	1,654	1,333	1,098	
	Deflection	96,000	28,440	12,000	6,144	3,555	2,239	1,500	1,053	0,768	0,577	
	Wind suction	28,730	14,080	8,354	5,527	3,926	2,933	2,274	1,815	1,482	1,233	
0,40	Bearer 50	10,760	5,410	3,257	2,177	1,526	1,115	0,850	0,669	0,541	0,446	 SHEET LOADED ON FOUR SUPPORT
	Bearer 100	14,740	6,795	3,730	2,327	1,589	1,154	0,876	0,687	0,554	0,456	
	Deflection	33,880	10,040	4,235	2,168	1,255	0,790	0,529	0,372	0,271	0,204	
	Wind suction	10,76	5,410	3,257	2,177	1,557	1,169	0,910	0,729	0,597	0,498	
0,50	Bearer 50	16,900	8,401	5,023	3,322	2,289	1,672	1,275	1,004	0,811	0,669	
	Bearer 100	23,110	10,39	5,594	3,49	2,383	1,731	1,314	1,031	0,831	0,683	
	Deflection	48,750	14,440	6,093	3,120	1,805	1,137	0,762	0,535	0,390	0,293	
	Wind suction	16,9	8,401	5,023	3,341	2,382	1,784	1,387	1,108	0,906	0,755	
0,60	Bearer 50	23,200	11,440	6,813	4,431	3,052	2,230	1,700	1,339	1,082	0,892	
	Bearer 100	31,660	13,860	7,460	4,654	3,179	2,308	1,752	1,375	1,108	0,911	
	Deflection	62,640	18,640	7,865	4,027	2,330	1,467	0,983	0,690	0,503	0,378	
	Wind suction	23,200	11,440	6,813	4,518	3,215	2,405	1,866	1,491	1,218	1,014	
0,65	Bearer 50	30,740	15,230	9,084	5,959	4,105	2,999	2,287	1,801	1,455	1,200	
	Bearer 100	41,880	18,640	10,030	6,260	4,275	3,104	2,356	1,849	1,490	1,226	
	Deflection	68,000	20,150	8,500	4,352	2,519	1,586	1,063	0,746	0,544	0,409	
	Wind suction	30,740	15,230	9,084	6,033	4,298	3,217	2,498	1,996	1,632	1,359	
0,70	Bearer 50	34,930	17,250	10,270	6,696	4,613	3,370	2,569	2,023	1,635	1,348	
	Bearer 100	47,550	20,950	11,270	7,034	4,804	3,488	2,647	2,078	1,674	1,377	
	Deflection	75,380	22,330	9,422	4,824	2,792	1,758	1,178	0,827	0,603	0,453	
	Wind suction	34,930	17,250	10,270	6,816	4,852	3,630	2,817	2,250	1,839	1,531	

Explanations

Moment	Bearing capacity in field, calculated for safety class 1
Bearer 50	Bearing capacity for intermediate bearer with $l_1 = 50$ mm, calculated for safety class 1
Bearer 100	Bearing capacity for intermediate bearer with $l_1 = 100$ mm, calculated for safety class 1
Deflection	Deflection L/90
Wind suction	Bearing capacity for upwardly directed wind load, calculated for safety class 1