

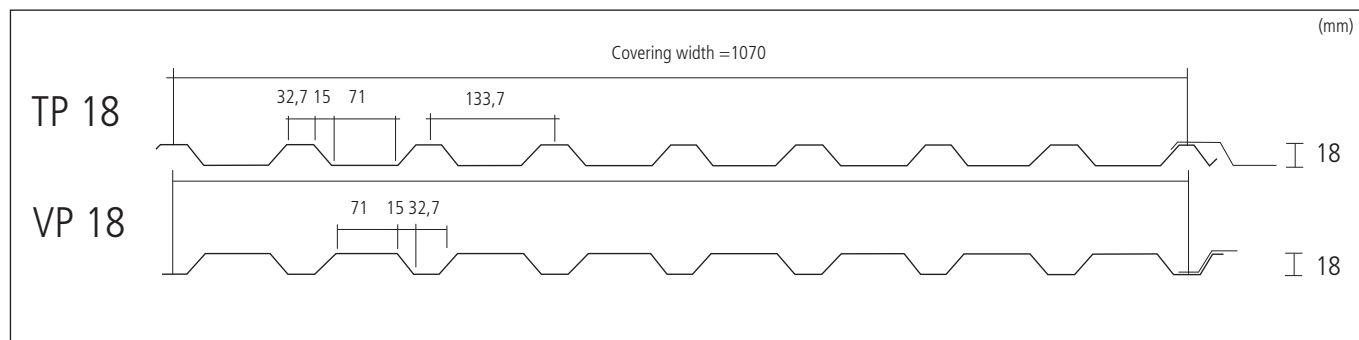

Cross sectional data - Areco TP/VP18

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	0,036	0,043	0,051	0,055	0,060
Bearing resistance $l_s=50$ mm	R_d	kN/m	7,8	13,1	18,7	24,4	28,2
Bearing resistance $l_s=100$ mm	R_d	kN/m	10,3	17,1	24,4	31,7	36,5
Narrow flange under pressure	M_{ld}	kNm/m	0,34	0,50	0,67	0,90	1,02
2:nd moment of area	I_{def}	mm ⁴ /mm	17	24	32	34	38
Wide flange under pressure	M_{ld}	kNm/m	0,32	0,49	0,67	0,90	1,02
2:nd moment of area	I_{def}	mm ⁴ /mm	13	19	25	27	30

Data for stressed skin calculations - Areco TP/VP18

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	$F_c/2/V$
mm	kN/m	kN/m	kN/m	kN/m		m
0,40	7,8	46,2	13	6,9	0,37	25
0,50	17,8	70,5	20	11,4	0,37	25
0,60	32,0	85,7	27	16,2	0,37	25
0,65	41,3	116,7	30	23,6	0,37	25
0,70	52,4	126,2	34	27,2	0,37	25

Foot traffic recommended by Areco

Table 3

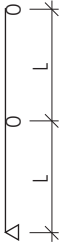
Pitch	Division into sections	0,50	0,60	0,65	0,70
$\leq 14^\circ$	Single section	0,40	1,00	1,20	1,40
	Multiple section	0,50	1,30	1,60	1,90
$\geq 14^\circ$	Single section	0,60	1,40	1,70	1,90
	Multiple section	0,70	1,80	2,40	2,60

Areco TP18

ROOF

Maximum loads in kN/m²

Table 4

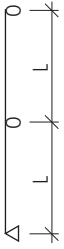
Thickness (mm)	Limitations	Span L (m)										Bearing combination
		0,60	0,90	1,20	1,50	1,80	2,10	2,40	2,70	3,00	3,30	
0,50	Moment	10,200	4,532	2,549	1,632	1,133	0,832	0,637	0,504	0,408	0,337	 SHEET LOADED ON TWO SUPPORT
	Deflection	20,150	5,970	2,519	1,290	0,746	0,470	0,315	0,221	0,161	0,121	
	Wind suction	11,220	4,985	2,804	1,795	1,246	0,916	0,701	0,554	0,449	0,371	
0,60	Moment	13,580	6,034	3,394	2,172	1,509	1,108	0,849	0,670	0,543	0,449	
	Deflection	26,230	7,772	3,279	1,679	0,972	0,612	0,410	0,288	0,210	0,158	
	Wind suction	14,930	6,637	3,734	2,389	1,659	1,219	0,933	0,737	0,597	0,494	
0,65	Moment	18,270	8,118	4,566	2,922	2,029	1,491	1,142	0,902	0,731	0,604	
	Deflection	28,320	8,391	3,540	1,812	1,049	0,660	0,442	0,311	0,227	0,170	
	Wind suction	20,090	8,930	5,023	3,215	2,232	1,640	1,256	0,992	0,804	0,664	
0,70	Moment	20,510	9,114	5,126	3,281	2,278	1,674	1,282	1,013	0,820	0,678	
	Deflection	31,500	9,334	3,938	2,016	1,167	0,735	0,492	0,346	0,252	0,189	
	Wind suction	22,560	10,030	5,639	3,609	2,506	1,841	1,41	1,114	0,902	0,746	
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	8,786	4,333	2,579	1,668	1,150	0,841	0,641	0,505	0,408	0,337	
	Bearer 100	11,740	5,157	2,788	1,744	1,193	0,867	0,659	0,517	0,417	0,343	
	Deflection	41,870	12,410	5,233	2,680	1,551	0,977	0,654	0,459	0,335	0,252	
	Wind suction	9,664	4,766	2,837	1,881	1,338	1,001	0,777	0,620	0,507	0,422	
0,60	Bearer 50	12,210	5,985	3,55	2,267	1,563	1,143	0,871	0,687	0,555	0,458	
	Bearer 100	16,270	7,009	3,790	2,370	1,622	1,179	0,895	0,703	0,567	0,467	
	Deflection	54,390	16,120	6,799	3,481	2,015	1,269	0,850	0,597	0,435	0,327	
	Wind suction	13,430	6,584	3,905	2,584	1,836	1,371	1,063	0,848	0,693	0,576	
0,65	Bearer 50	16,190	7,961	4,730	3,041	2,097	1,533	1,169	0,921	0,744	0,614	
	Bearer 100	21,540	9,401	5,083	3,179	2,175	1,581	1,201	0,943	0,760	0,626	
	Deflection	58,730	17,400	7,342	3,759	2,175	1,370	0,918	0,645	0,470	0,353	
	Wind suction	17,800	8,757	5,203	3,447	2,451	1,832	1,421	1,134	0,926	0,771	
0,70	Bearer 50	18,490	9,075	5,386	3,447	2,377	1,737	1,325	1,044	0,843	0,696	
	Bearer 100	24,590	10,660	5,762	3,604	2,465	1,792	1,361	1,069	0,862	0,709	
	Deflection	65,280	19,340	8,161	4,178	2,418	1,523	1,020	0,716	0,522	0,392	
	Wind suction	20,340	9,983	5,925	3,921	2,787	2,082	1,615	1,289	1,052	0,876	
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	10,670	5,300	3,168	2,094	1,443	1,054	0,804	0,633	0,511	0,422	
	Bearer 100	14,580	6,552	3,527	2,200	1,503	1,091	0,828	0,650	0,524	0,431	
	Deflection	32,870	9,740	4,109	2,104	1,218	0,767	0,514	0,361	0,263	0,198	
	Wind suction	11,730	5,830	3,485	2,318	1,653	1,238	0,962	0,769	0,629	0,524	
0,60	Bearer 50	14,840	7,330	4,366	2,847	1,961	1,433	1,092	0,860	0,695	0,573	
	Bearer 100	20,250	8,905	4,793	2,990	2,042	1,483	1,125	0,883	0,712	0,586	
	Deflection	42,710	12,650	5,338	2,733	1,582	0,996	0,667	0,469	0,342	0,257	
	Wind suction	16,320	8,063	4,803	3,187	2,268	1,697	1,317	1,052	0,86	0,716	
0,65	Bearer 50	19,660	9,743	5,814	3,818	2,630	1,922	1,465	1,154	0,932	0,769	
	Bearer 100	26,780	11,940	6,429	4,011	2,739	1,989	1,51	1,185	0,954	0,785	
	Deflection	46,120	13,660	5,765	2,951	1,708	1,076	0,721	0,506	0,369	0,277	
	Wind suction	21,630	10,720	6,396	4,249	3,027	2,266	1,76	1,406	1,149	0,957	
0,70	Bearer 50	22,470	11,110	6,623	4,328	2,982	2,178	1,661	1,308	1,057	0,871	
	Bearer 100	30,590	13,540	7,287	4,546	3,105	2,255	1,711	1,343	1,082	0,890	
	Deflection	51,260	15,190	6,408	3,281	1,899	1,196	0,801	0,563	0,41	0,308	
	Wind suction	24,720	12,220	7,286	4,836	3,443	2,576	2,000	1,598	1,306	1,087	

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	7,180	3,191	1,795	1,149	0,798	0,586	0,449	0,355	0,287	0,237	 SHEET LOADED ON TWO SUPPORT
	Deflection	11,060	3,276	1,382	0,708	0,410	0,258	0,173	0,121	0,088	0,066	
	Wind suction	7,180	3,191	1,795	1,149	0,798	0,586	0,449	0,355	0,287	0,237	
0,50	Moment	10,990	4,885	2,748	1,759	1,221	0,897	0,687	0,543	0,440	0,363	
	Deflection	16,000	4,740	2,000	1,024	0,592	0,373	0,250	0,176	0,128	0,096	
	Wind suction	10,990	4,885	2,748	1,759	1,221	0,897	0,687	0,543	0,440	0,363	
0,60	Moment	14,940	6,640	3,735	2,390	1,660	1,220	0,934	0,738	0,598	0,494	
	Deflection	20,750	6,149	2,594	1,328	0,769	0,484	0,324	0,228	0,166	0,125	
	Wind suction	14,940	6,640	3,735	2,390	1,660	1,220	0,934	0,738	0,598	0,494	
0,65	Moment	20,040	8,905	5,009	3,206	2,226	1,636	1,252	0,989	0,801	0,662	
	Deflection	22,410	6,641	2,802	1,435	0,830	0,523	0,350	0,246	0,179	0,135	
	Wind suction	20,040	8,905	5,009	3,206	2,226	1,636	1,252	0,989	0,801	0,662	
0,70	Moment	22,710	10,090	5,678	3,634	2,524	1,854	1,420	1,122	0,909	0,751	
	Deflection	24,900	7,378	3,113	1,594	0,922	0,581	0,389	0,273	0,199	0,150	
	Wind suction	22,710	10,090	5,678	3,634	2,524	1,854	1,420	1,122	0,909	0,751	
0,40	Bearer 50	6,202	3,106	1,865	1,244	0,862	0,630	0,481	0,379	0,306	0,252	 SHEET LOADED ON THREE SUPPORT
	Bearer 100	8,307	3,836	2,090	1,307	0,894	0,650	0,494	0,388	0,313	0,257	
	Deflection	31,100	9,215	3,888	1,990	1,152	0,725	0,486	0,341	0,249	0,187	
	Wind suction	6,202	3,106	1,865	1,244	0,889	0,667	0,519	0,415	0,340	0,283	
0,50	Bearer 50	9,774	4,832	2,880	1,873	1,291	0,944	0,720	0,567	0,458	0,378	
	Bearer 100	13,050	5,789	3,130	1,958	1,339	0,974	0,740	0,581	0,468	0,385	
	Deflection	45,200	13,390	5,650	2,893	1,674	1,054	0,706	0,496	0,362	0,272	
	Wind suction	9,774	4,832	2,880	1,911	1,361	1,018	0,790	0,631	0,516	0,430	
0,60	Bearer 50	13,420	6,582	3,904	2,493	1,719	1,257	0,958	0,755	0,610	0,503	
	Bearer 100	17,890	7,708	4,168	2,607	1,783	1,296	0,985	0,773	0,623	0,513	
	Deflection	58,790	17,420	7,349	3,763	2,177	1,371	0,919	0,645	0,470	0,353	
	Wind suction	13,420	6,582	3,904	2,583	1,835	1,371	1,063	0,848	0,693	0,576	
0,65	Upplag 50	17,830	8,773	5,214	3,354	2,313	1,690	1,289	1,016	0,821	0,677	
	Upplag 100	23,730	10,370	5,607	3,507	2,399	1,744	1,325	1,040	0,839	0,690	
	Deflection	63,470	18,810	7,934	4,062	2,351	1,480	0,992	0,697	0,508	0,382	
	Wind suction	17,830	8,773	5,214	3,454	2,456	1,836	1,424	1,137	0,929	0,773	
0,70	Bearer 50	20,260	9,936	5,894	3,766	2,596	1,898	1,447	1,140	0,921	0,760	
	Bearer 100	26,940	11,640	6,295	3,937	2,693	1,958	1,487	1,168	0,941	0,775	
	Deflection	70,580	20,910	8,823	4,517	2,614	1,646	1,103	0,775	0,565	0,424	
	Wind suction	20,260	9,936	5,894	3,900	2,771	2,070	1,605	1,281	1,046	0,870	
0,40	Bearer 50	7,499	3,786	2,285	1,529	1,081	0,790	0,602	0,474	0,383	0,316	 SHEET LOADED ON FOUR SUPPORT
	Bearer 100	10,270	4,758	2,643	1,649	1,126	0,818	0,621	0,487	0,392	0,323	
	Deflection	24,420	7,236	3,053	1,563	0,904	0,570	0,382	0,268	0,195	0,147	
	Wind suction	7,499	3,786	2,285	1,529	1,096	0,823	0,641	0,514	0,421	0,351	
0,50	Bearer 50	11,860	5,907	3,536	2,351	1,620	1,183	0,902	0,710	0,574	0,473	
	Bearer 100	16,210	7,355	3,959	2,470	1,687	1,225	0,930	0,730	0,588	0,484	
	Deflection	35,490	10,520	4,436	2,271	1,315	0,828	0,555	0,389	0,284	0,213	
	Wind suction	11,86	5,907	3,536	2,354	1,680	1,259	0,978	0,782	0,640	0,533	
0,60	Bearer 50	16,320	8,061	4,802	3,130	2,157	1,575	1,201	0,946	0,764	0,630	
	Bearer 100	22,270	9,793	5,271	3,288	2,246	1,631	1,238	0,971	0,783	0,644	
	Deflection	46,160	13,680	5,770	2,954	1,710	1,077	0,721	0,507	0,369	0,277	
	Wind suction	16,320	8,061	4,802	3,186	2,268	1,697	1,317	1,052	0,860	0,715	
0,65	Bearer 50	21,660	10,740	6,409	4,211	2,901	2,120	1,616	1,273	1,028	0,848	
	Bearer 100	29,500	13,170	7,091	4,424	3,021	2,194	1,665	1,307	1,053	0,866	
	Deflection	49,840	14,770	6,230	3,190	1,846	1,162	0,779	0,547	0,399	0,300	
	Wind suction	21,660	10,740	6,409	4,258	3,034	2,271	1,761	1,410	1,152	0,959	
0,70	Bearer 50	24,630	12,170	7,249	4,728	3,257	2,380	1,814	1,429	1,154	0,952	
	Bearer 100	33,530	14,790	7,961	4,967	3,392	2,463	1,869	1,467	1,182	0,973	
	Deflection	55,420	16,420	6,928	3,547	2,053	1,293	0,866	0,608	0,443	0,333	
	Wind suction	24,630	12,170	7,249	4,810	3,424	2,562	1,989	1,588	1,298	1,080	

Explanations

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