SIMEZA

HOPPER SILOS 45º
TABLE OF SPECIFICATIONS AND CAPACITIES

VOLUME OF 45º HOPPER SILOS

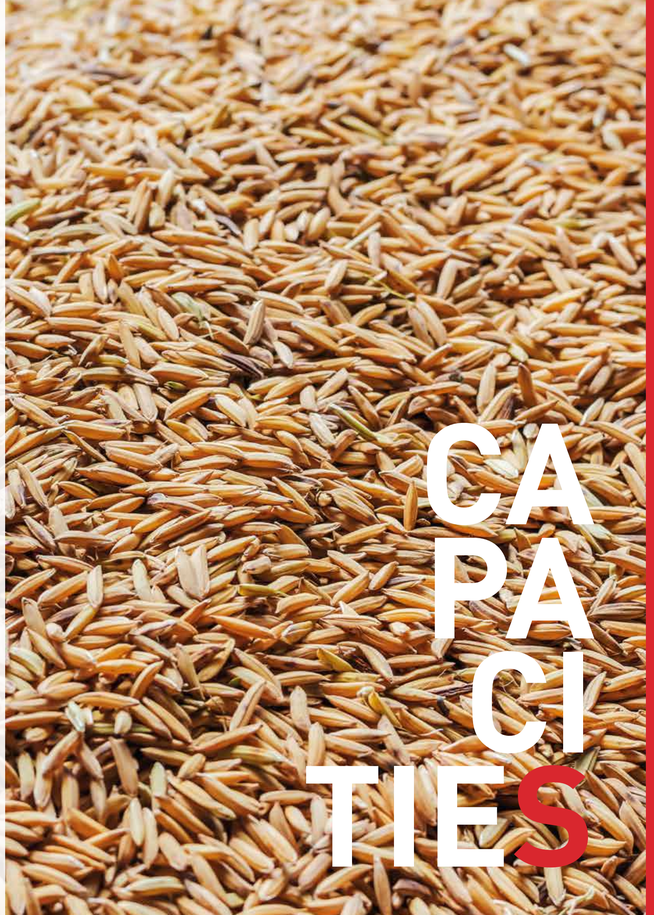
	SILO Ø (m)	3,10	3,60	3,80	4,60	5,30	6,10	6,90	7,60	8,40	9,20	9,90	10,70	11,50	12,20
SIMEZA	OUTLET HEIGHT (m)	1,00	0,75	1,14	1,38	1,00	1,14	1,37	1,00	1,15	1,38	1,00	1,13	1,38	0,99
	HOPPER HEIGHT (m)	1,44	1,69	1,82	2,20	2,59	2,97	3,36	3,74	4,12	4,50	4,88	5,27	5,64	6,03
	ROOF HEIGHT (m)	0,85	0,96	1,14	1,37	1,60	1,82	2,01	2,26	2,48	2,45	2,67	2,89	3,02	3,33
	FIXED HEIGHT (m)	3,30	3,41	4,10	4,96	5,18	5,92	6,75	6,99	7,74	8,33	8,55	9,29	10,04	10,35
RING NUMBERS	CYLINDER HEIGHT (m)	VOLUME (m^3)													
1	1,04	14	20	24	38	56	79	108	142	183	231	287	351	423	506
2	2,18	22	32	37	57	82	113	150	195	247	307	376	454	541	640
3	3,33	31	43	50	76	108	146	193	247	310	382	464	557	659	774
4	4,47	39	55	63	95	133	180	235	300	374	458	553	659	777	908
5	5,62	48	66	76	113	159	213	278	352	437	533	641	762	895	1.043
6	6,76	56	78	90	132	185	247	320	404	500	609	730	865	1.013	1.177
7	7,90	64	89	103	151	210	281	363	457	564	684	819	968	1.131	1.311
8	9,05	73	100	116	170	236	314	405	509	627	760	907	1.070	1.249	1.445
9	10,19	81	112	129	189	262	348	448	562	691	835	996	1.173	1.367	1.580
10	11,34	90	123	142	208	287	381	490	614	754	911	1.085	1.276	1.485	1.714
11	12,48	98	135	155	227	313	415	533	667	818	986	1.173	1.379	1.603	1.848
12	13,62	106	146	168	246	339	448	575	719	881	1.062	1.262	1.482	1.721	1.982
13	14,77	115	158	181	264	365	482	618	772	945	1.137	1.350	1.584	1.839	2.117
14	15,91	123	169	194	283	390	515	660	824	1.008	1.213	1.439	1.687	1.957	2.251
15	17,06	132	181	208	302	416	549	702	876	1.072	1.288	1.528	1.790	2.075	2.385

CAPACITY OF 45º HOPPER SILOS

Density= 0,75 t/m^3

	SILO Ø (m)	3,10	3,60	3,80	4,60	5,30	6,10	6,90	7,60	8,40	9,20	9,90	10,70	11,50	12,20
SIMEZA	OUTLET HEIGHT (m)	1,00	0,75	1,14	1,38	1,00	1,14	1,37	1,00	1,15	1,38	1,00	1,13	1,38	0,99
	HOPPER HEIGHT (m)	1,44	1,69	1,82	2,20	2,59	2,97	3,36	3,74	4,12	4,50	4,88	5,27	5,64	6,03
	ROOF HEIGHT (m)	0,85	0,96	1,14	1,37	1,60	1,82	2,01	2,26	2,48	2,45	2,67	2,89	3,02	3,33
	FIXED HEIGHT (m)	3,30	3,41	4,10	4,96	5,18	5,92	6,75	6,99	7,74	8,33	8,55	9,29	10,04	10,35
RING NUMBERS	CYLINDER HEIGHT (m)	CAPACITY (MT)													
1	1,04	10	15	18	28	42	59	81	107	137	174	215	263	318	379
2	2,18	17	24	28	43	61	85	113	146	185	230	282	340	406	480
3	3,33	23	32	38	57	81	110	145	185	233	287	348	417	495	581
4	4,47	29	41	48	71	100	135	176	225	280	343	415	495	583	681
5	5,62	36	50	57	85	119	160	208	264	328	400	481	572	672	782
6	6,76	42	58	67	99	138	185	240	303	375	457	548	649	760	883
7	7,90	48	67	77	113	158	210	272	343	423	513	614	726	849	983
8	9,05	55	75	87	128	177	236	304	382	471	570	681	803	937	1.084
9	10,19	61	84	97	142	196	261	336	421	518	627	747	880	1.026	1.185
10	11,34	67	93	107	156	216	286	368	461	566	683	813	957	1.114	1.285
11	12,48	74	101	116	170	235	311	399	500	613	740	880	1.034	1.202	1.386
12	13,62	80	110	126	184	254	336	431	539	661	796	946	1.111	1.291	1.487
13	14,77	86	118	136	198	273	361	463	579	708	853	1.013	1.188	1.379	1.587
14	15,91	92	127	146	212	293	387	495	618	756	910	1.079	1.265	1.468	1.688
15	17,06	99	135	156	227	312	412	527	657	804	966	1.146	1.342	1.556	1.789

Total height of the silo = cylinder height + fixed height / Fixed height = outlet height + hopper height + roof height



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SIMEZA
A PETKUS Company

360 Degree Solutions for your Storage

PRODUCT CATALOGUE

SIMEZA

SILOS

360 Degree Solutions for your Storage

01 GLOBAL VISIÓN

360 DEGREES SOLUTION

SIMEZA has been manufacturing storage silos for cereals, flours and other industrial products for over 40 years. It is one of the pioneer Silo companies in Europe with broad experience in the design, production and installation of corrugated steel sheet silos for industrial, agricultural and farm uses.

Grain storage in cylindrical silos made by corrugated steel sheet guarantees perfect conservation, and thanks to specifics accessories, SIMEZA can also ensure proper aeration. SIMEZA silos are designed in a modular way so that they can be assembled quickly. In addition, the high quality materials used in production makes them highly resistant in all types of environments, assuring the conservation of all types of grains. As can be seen in the product catalogue, individual silo storage capacities range from 15 to 18,000 m3.

"Years of experience and a strong commitment to excellence have created a high quality SIMEZA product that our employees and our customers are proud of around the globe".

MISSION

360 DEGREES SOLUTIONS FOR YOUR STORAGE.

It's what we've been doing for over 40 years. The broad experience and deep knowledge of our employees combined with a focus on the quality of raw materials and a desire to be the best is the DNA of our company. Providing great solutions for our customers is what inspires our employees – day in – day out.

QUALITY
EXPERIENCE
PASSION

VISION

PETKUS, founded in 1852 in Wutha-Farnroda (Germany), took over SIMEZA in 2016. PETKUS has maintained a mission throughout the centuries around its valuable proposal "Strong seed. Healthy grain". With more than 350 employees and presence in 23 countries, it is a supplier of turnkey plants for seed, grain and cereal processing, and establishes itself as one of the leading companies in the industry, which creates new opportunities for SIMEZA all over the world. Moreover, it facilitates the process of expansion to new markets as well as modifications to facilities in Africa, the Middle East, Russia, Eastern Europe and East Asia.

GROWTH
NEW MARKETS
PARTNERSHIP

VALUES

At SIMEZA we maintain a firm commitment to quality and innovation in the manufacturing of our silos, tanks and their accessories. Likewise, we fulfill the quality and safety norms described in the current regulations of the European Union and demand the same from our suppliers.

INNOVATION
SAFETY
COMMITMENT

SIMEZA

HOPPER SILOS 60º
TABLE OF SPECIFICATIONS
AND CAPACITIES

VOLUME OF 60º HOPPER SILOS

	SILO Ø (m)	3,10	3,60	3,80	4,60	5,30	6,10	6,90	7,60	8,40
SIMEZA	OUTLET HEIGHT (m)	1,18	0,74	1,04	1,15	1,03	0,86	1,34	1,20	1,17
	HOPPER HEIGHT (m)	2,41	2,85	3,07	3,59	4,23	5,02	5,68	6,34	7,00
	ROOF HEIGHT (m)	0,85	0,96	1,14	1,37	1,60	1,82	2,01	2,26	2,48
	FIXED HEIGHT (m)	4,44	4,55	5,25	6,11	6,85	7,69	9,03	9,80	10,65
RING NUMBERS	CYLINDER HEIGHT (m)	VOLUME (m3)								
1	1,04	16	24	29	46	68	99	137	182	237
2	2,18	25	36	42	64	94	133	179	235	300
3	3,33	33	47	55	83	120	166	221	287	364
4	4,47	42	59	68	102	145	200	264	339	427
5	5,62	50	70	81	121	171	233	306	392	490
6	6,76	58	81	94	140	197	267	349	444	554
7	7,90	67	93	107	159	223	301	391	497	617
8	9,05	75	104	121	178	248	334	434	549	681
9	10,19	84	116	134	197	274	368	476	602	744
10	11,34	92	127	147	215	300	401	519	654	808
11	12,48	100	139	160	234	325	435	561	706	871
12	13,62	109	150	173	253	351	468	604	759	935
13	14,77	117	162	186	272	377	502	646	811	998
14	15,91	126	173	199	291	402	536	689	864	1.061
15	17,06	134	184	212	310	428	569	731	916	1.125

CAPACITY OF 60º HOPPER SILOS

Density= 0,75 t/m3

	SILO Ø (m)	3,10	3,60	3,80	4,60	5,30	6,10	6,90	7,60	8,40
SIMEZA	OUTLET HEIGHT (m)	1,18	0,74	1,04	1,15	1,03	0,86	1,34	1,20	1,17
	HOPPER HEIGHT (m)	2,41	2,85	3,07	3,59	4,23	5,02	5,68	6,34	7,00
	ROOF HEIGHT (m)	0,85	0,96	1,14	1,37	1,60	1,82	2,01	2,26	2,48
	FIXED HEIGHT (m)	4,44	4,55	5,25	6,11	6,85	7,69	9,03	9,80	10,65
RING NUMBERS	CYLINDER HEIGHT (m)	CAPACITY (MT)								
1	1,04	12	18	22	34	51	74	102	137	177
2	2,18	19	27	31	48	71	100	134	176	225
3	3,33	25	35	41	62	90	125	166	215	273
4	4,47	31	44	51	77	109	150	198	255	320
5	5,62	37	52	61	91	128	175	230	294	368
6	6,76	44	61	71	105	148	200	262	333	415
7	7,90	50	70	81	119	167	225	294	373	463
8	9,05	56	78	90	133	186	251	325	412	511
9	10,19	63	87	100	147	205	276	357	451	558
10	11,34	69	95	110	162	225	301	389	490	606
11	12,48	75	104	120	176	244	326	421	530	653
12	13,62	82	113	130	190	263	351	453	569	701
13	14,77	88	121	140	204	283	376	485	608	748
14	15,91	94	130	149	218	302	402	517	648	796
15	17,06	101	138	159	232	321	427	548	687	844

Total height of the silo = cylinder height + fixed height
Fixed height = outlet height + hopper height + roof height

SIMEZA

FLAT BOTTOM SILOS
TABLE OF SPECIFICATIONS AND CAPACITIES

VOLUME OF FLAT BOTTOM SILOS

Total height of the silo = roof height + cylinder height

	ROOF HEIGHT (m)	1,37	1,60	1,82	2,01	2,26	2,48	2,45	2,67	2,89	3,02	3,33	3,56	3,78	4,00	4,22	4,46	5,10	5,54	5,88	6,32	6,77	7,21	7,65	8,53
RING NUMBERS	CYLINDER HEIGHT (m)	VOLUME (m3)																							
4	4,63	84	116	154	197	247	302	365	434	510	593	683	781	886	1.000	1.121	1.389	1.692	2.032	2.409	2.826	3.284	3.786	4.331	5.563
5	5,77	103	142	187	240	299	366	440	522	613	711	817	932	1.056	1.189	1.331	1.643	1.994	2.386	2.820	3.298	3.821	4.392	5.011	6.402
6	6,92	122	167	221	282	351	429	516	611	715	829	952	1.084	1.226	1.378	1.541	1.897	2.296	2.741	3.231	3.770	4.358	4.998	5.691	7.241
7	8,06	141	193	254	324	404	493	591	700	818	947	1.086	1.235	1.396	1.568	1.750	2.151	2.598	3.095	3.642	4.242	4.895	5.604	6.370	8.080
8	9,20	159	219	288	367	456	556	667	788	921	1.065	1.220	1.387	1.566	1.757	1.960	2.404	2.900	3.449	4.053	4.714	5.432	6.210	7.050	8.919
9	10,35	178	244	321	409	509	620	742	877	1.024	1.183	1.354	1.539	1.736	1.946	2.170	2.658	3.202	3.804	4.464	5.186	5.969	6.816	7.729	9.758
10	11,49	197	270	355	452	561	683	818	966	1.126	1.301	1.488	1.690	1.906	2.136	2.380	2.912	3.504	4.158	4.876	5.658	6.506	7.423	8.409	10.597
11	12,64	216	296	388	494	614	747	893	1.054	1.229	1.419	1.623	1.842	2.076	2.325	2.589	3.166	3.806	4.513	5.287	6.129	7.043	8.029	9.089	11.436
12	13,78	235	321	422	537	666	810	969	1.143	1.332	1.537	1.757	1.993	2.246	2.514	2.799	3.420	4.109	4.867	5.698	6.601	7.580	8.635	9.768	12.275
13	14,92	254	347	456	579	719	874	1.044	1.231	1.435	1.655	1.891	2.145	2.415	2.703	3.009	3.673	4.411	5.222	6.109	7.073	8.117	9.241	10.448	13.114
14	16,07	273	373	489	622	771	937	1.120	1.320	1.538	1.773	2.025	2.296	2.585	2.893	3.219	3.927	4.713	5.576	6.520	7.545	8.654	9.847	11.127	13.953
15	17,21	292	399	523	664	823	1.000	1.195	1.409	1.640	1.890	2.160	2.448	2.755	3.082	3.428	4.181	5.015	5.931	6.931	8.017	9.191	10.454	11.807	14.792
16	18,36	310	424	556	707	876	1.064	1.271	1.497	1.743	2.008	2.294	2.599	2.925	3.271	3.638	4.435	5.317	6.285	7.342	8.489	9.728	11.060	12.486	15.631
17	19,50	329	450	590	749	928	1.127	1.346	1.586	1.846	2.126	2.428	2.751	3.095	3.461	3.848	4.689	5.619	6.640	7.753	8.961	10.265	11.666	13.166	16.470
18	20,64	348	476	623	792	981	1.191	1.422	1.674	1.949	2.244	2.562	2.902	3.265	3.650	4.058	4.942	5.921	6.994	8.164	9.433	10.802	12.272	13.846	17.309
19	21,79	367	501	657	834	1.033	1.254	1.497	1.763	2.051	2.362	2.697	3.054	3.435	3.839	4.267	5.196	6.223	7.349	8.575	9.905	11.339	12.878	14.525	18.148
20	22,93	386	527	690	877	1.086	1.318	1.573	1.852	2.154	2.480	2.831	3.206	3.605	4.028	4.477	5.450	6.525	7.703	8.987	10.377	11.876	13.484	15.205	18.987
21	24,08	405	553	724	919	1.138	1.381	1.648	1.940	2.257	2.598	2.965	3.357	3.775	4.218	4.687	5.704	6.827	8.058	9.398	10.849	12.413	14.091	15.884	19.826
22	25,22	424	578	758	962	1.190	1.445	1.724	2.029	2.360	2.716	3.099	3.509	3.944	4.407	4.897	5.958	7.129	8.412	9.809	11.321	12.950	14.697	16.564	20.665
23	26,36	443	604	791	1.004	1.243	1.508	1.799	2.118	2.463	2.834	3.234	3.660	4.114	4.596	5.106	6.211	7.431	8.767	10.220	11.793	13.486	15.303	17.244	21.504
24	27,51	461	630	825	1.047	1.295	1.571	1.875	2.206	2.565	2.952	3.368	3.812	4.284	4.786	5.316	6.465	7.733	9.121	10.631	12.265	14.023	15.909	17.923	22.343
25	28,65	480	655	858	1.089	1.348	1.635	1.950	2.295	2.668	3.070	3.502	3.963	4.454	4.975	5.526	6.719	8.035	9.476	11.042	12.737	14.560	16.515	18.603	23.182

CAPACITY OF FLAT BOTTOM SILOS

Density= 0,75 t/m3

Total height of the silo = roof height + cylinder height

	ROOF HEIGHT (m)	1,37	1,60	1,82	2,01	2,26	2,48	2,45	2,67	2,89	3,02	3,33	3,56	3,78	4,00	4,22	4,46	5,10	5,54	5,88	6,32	6,77	7,21	7,65	8,53
RING NUMBERS	CYLINDER HEIGHT (m)	CAPACITY (MT)																							
4	4,63	63	87	115	148	185	227	274	325	382	444	512	586	665	750	841	1.042	1.269	1.524	1.807	2.119	2.463	2.839	3.249	4.172
5	5,77	77	106	140	180	224	274	330	392	459	533	613	699	792	892	998	1.232	1.496	1.790	2.115	2.473	2.866	3.294	3.758	4.802
6	6,92	91	125	165	211	264	322	387	458	536	621	714	813	920	1.034	1.156	1.423	1.722	2.055	2.423	2.827	3.269	3.748	4.268	5.431
7	8,06	105	145	191	243	303	370	443	525	614	710	814	927	1.047	1.176	1.313	1.613	1.949	2.321	2.732	3.181	3.671	4.203	4.778	6.060
8	9,20	120	164	216	275	342	417	500	591	691	798	915	1.040	1.174	1.318	1.470	1.803	2.175	2.587	3.040	3.535	4.074	4.658	5.287	6.689
9	10,35	134	183	241	307	382	465	557	658	768	887	1.016	1.154	1.302	1.460	1.627	1.994	2.402	2.853	3.348	3.889	4.477	5.112	5.797	7.319
10	11,49	148	203	266	339	421	512	613	724	845	975	1.116	1.268	1.429	1.602	1.785	2.184	2.628	3.119	3.657	4.243	4.880	5.567	6.307	7.948
11	12,64	162	222	291	371	460	560	670	791	922	1.064	1.217	1.381	1.557	1.744	1.942	2.374	2.855	3.385	3.965	4.597	5.282	6.022	6.816	8.577
12	13,78	176	241	317	403	500	608	727	857	999	1.152	1.318	1.495	1.684	1.886	2.099	2.565	3.081	3.651	4.273	4.951	5.685	6.476	7.326	9.206
13	14,92	190	260	342	434	539	655	783	924	1.076	1.241	1.418	1.609	1.812	2.028	2.257	2.755	3.308	3.916	4.582	5.305	6.088	6.931	7.836	9.836
14	16,07	205	280	367	466	578	703	840	990	1.153	1.329	1.519	1.722	1.939	2.170	2.414	2.945	3.534	4.182	4.890	5.659	6.490	7.386	8.345	10.465
15	17,21	219	299	392	498	618	750	897	1.056	1.230	1.418	1.620	1.836	2.066	2.312	2.571	3.136	3.761	4.448	5.198	6.013	6.893	7.840	8.855	11.094
16	18,36	233	318	417	530	657	798	953	1.123	1.307	1.506	1.720	1.950	2.194	2.453	2.729	3.326	3.987	4.714	5.507	6.367	7.296	8.295	9.365	11.723
17	19,50	247	337	442	562	696	845	1.010	1.189	1.384	1.595	1.821	2.063	2.321	2.595	2.886	3.516	4.214	4.980	5.815	6.721	7.699	8.749	9.875	12.353
18	20,64	261	357	468	594	736	893	1.066	1.256	1.461	1.683	1.922	2.177	2.449	2.737	3.043	3.707	4.441	5.246	6.123	7.075	8.101	9.204	10.384	12.982
19	21,79	275	376	493	626	775	941	1.123	1.322	1.539	1.772	2.022	2.290	2.576	2.879	3.201	3.897	4.667	5.512	6.432	7.429	8.504	9.659	10.894	13.611
20	22,93	289	395	518	657	814	988	1.180	1.389	1.616	1.860	2.123	2.404	2.704	3.021	3.358	4.088	4.894	5.777	6.740	7.783	8.907	10.113	11.404	14.240
21	24,08	304	415	543	689	854	1.036	1.236	1.455	1.693	1.949	2.224	2.518	2.831	3.163	3.515	4.278	5.120	6.043	7.048	8.137	9.309	10.568	11.913	14.870
22	25,22	318	434	568	721	893	1.083	1.293	1.522	1.770	2.037	2.325	2.631	2.958	3.305	3.673	4.468	5.347	6.309	7.357	8.491	9.712	11.023	12.423	15.499
23	26,36	332	453	593	753	932	1.131	1.350	1.588	1.847	2.126	2.425	2.745	3.086	3.447	3.830	4.659	5.573	6.575	7.665	8.845	10.115	11.477	12.933	16.128
24	27,51	346	472	619	785	972	1.179	1.406	1.655	1.924	2.214	2.526	2.859	3.213	3.589	3.987	4.849	5.800	6.841	7.973	9.198	10.518	11.932	13.442	16.757
25	28,65	360	492	644	817	1.011	1.226	1.463	1.721	2.001	2.303	2.627	2.972	3.341	3.731	4.144	5.039	6.026	7.107	8.282	9.552	10.920	12.386	13.952	17.387

DESIGN

Our Design Department has a team of specialized engineers who handle each project individually. They work side by side with the client, offering personalized attention and supervision of the project from start to design, production and installation. All structures are designed according to either ASAE/ANSI American or Euro-Code European norms in order to withstand the stress caused by continuous use, extreme temperatures, high winds, heavy snow and seismic loads.

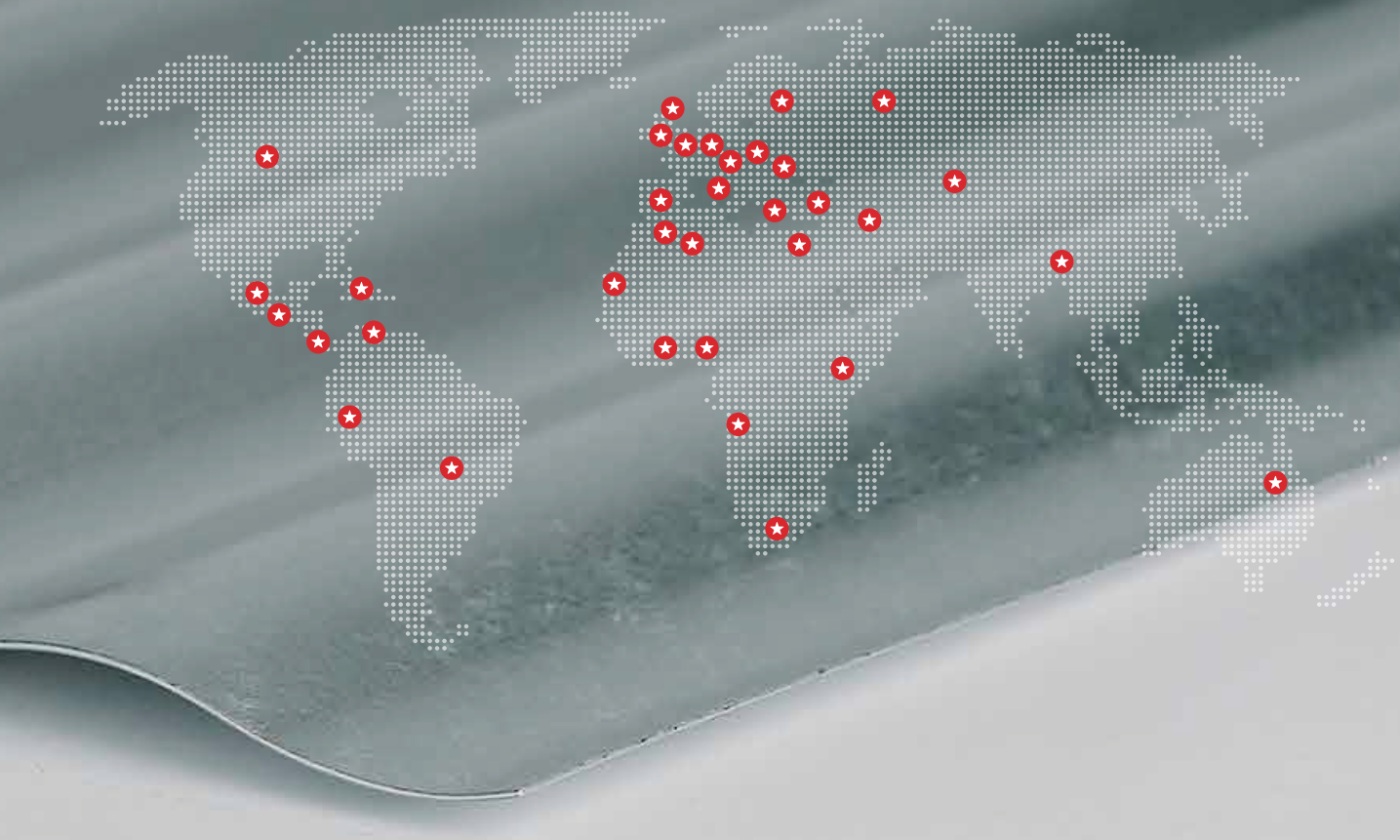
PRODUCTION

Our silos are produced with the latest technology and we do not hesitate to opt for superior quality when selecting raw materials. The steel that we use as a base corresponds to S-350GD + Z600, offering greater resistance to corrosion. It can be painted upon client's request. Galvanized sheet metal silos are currently the best option for grain storage thanks to their versatility, ease of assembly, cleanliness and low storage costs.

INSTALLATION

SIMEZA silos are designed in a modular way, making their assembly significantly easier. Together with the quality of the materials used in production and the team of experienced professionals, this allows SIMEZA to design, produce and install tailor-made solutions anywhere in the world. They are highly resistant structures in all types of environments that ensure the conservation of all types of grain for long periods of time.

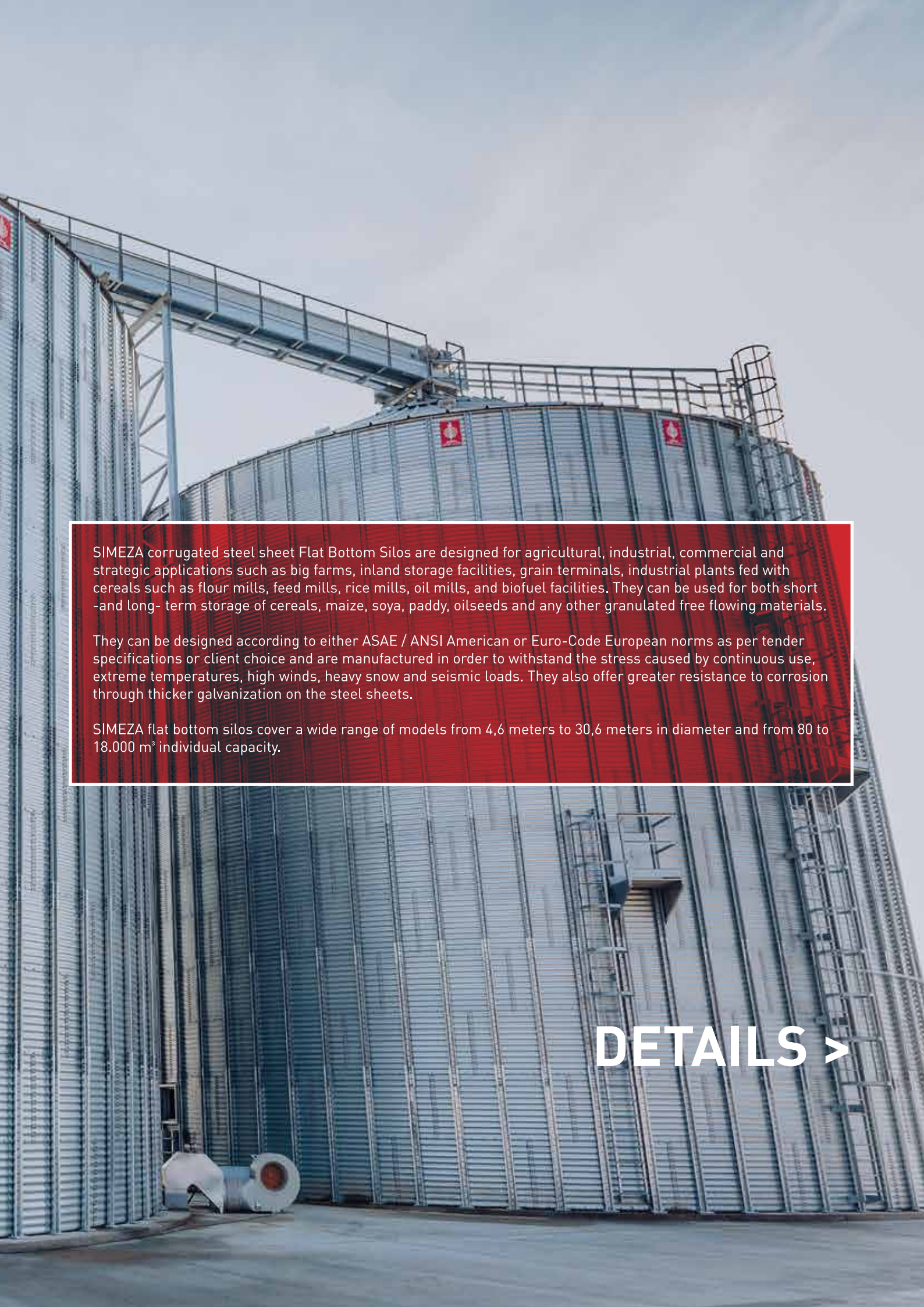
REFERENCES



"SIMEZA is positioned for growth and can support this growth with reference facilities in dozens of countries across the five continents."

Wall sheet shape of SIMEZA is 104 mm corrugation which reduces friction and product residues.

FLAT BOTTOM SILOS



SIMEZA corrugated steel sheet Flat Bottom Silos are designed for agricultural, industrial, commercial and strategic applications such as big farms, inland storage facilities, grain terminals, industrial plants fed with cereals such as flour mills, feed mills, rice mills, oil mills, and biofuel facilities. They can be used for both short -and long- term storage of cereals, maize, soya, paddy, oilseeds and any other granulated free flowing materials.

They can be designed according to either ASAE / ANSI American or Euro-Code European norms as per tender specifications or client choice and are manufactured in order to withstand the stress caused by continuous use, extreme temperatures, high winds, heavy snow and seismic loads. They also offer greater resistance to corrosion through thicker galvanization on the steel sheets.

SIMEZA flat bottom silos cover a wide range of models from 4,6 meters to 30,6 meters in diameter and from 80 to 18.000 m^3 individual capacity.

DETAILS >

ROOF

30° conical shape.

The roof panels are manufactured with S-350GD - Z600 high tensile steel sheets or can be pre-painted galvanized steel sheet upon request.

The static calculation is performed by the finite element method for:

· Each individual local wind, snow and seismic loads.

· Additional heavy duty loads of the catwalks on the roof.

· Temperature probe loads.

The roof is a self-supporting structure up to 10 m in diameter. Beyond this diameter the roof is equipped with an independent supporting structure.

Roof panels are assembled with galvanized steel bolts and plastic seal washers. Stainless steel bolts can be delivered upon request.

The roof is equipped with:

A) d = 500 mm, d = 600 mm or d= 900 mm inlet flange according to the capacity of the conveyor system.

B) Air vents allowing for the circulation of the existing air in the silos with the incoming grain.

C) Inspection hatch, located at the silo eave which allows for:

· visual control of the stored product.

· Taking samples.

· Maintenance of the maximum level indicator.

This inspection hatch is equipped with a rest platform which can be reached either by a ladder fixed on the silo wall starting from ground level or by a drop down ladder from the catwalk fixed to a relevant post.

INSPECTION DOORS

Flat Bottom Silos are equipped with a hinged double type lateral access door with a hot dipped galvanized steel frame in the second ring of the wall.

This door is designed according to a safety concept which only allows for opening if the upper level of the stored product is below the door.

This door allows for:

A) Easy entrance to the silos.

B) Final cleaning of the bottom and aeration floor or channels.

C) Control and maintenance of the sweep auger.

Additional lateral access doors can be installed above the angle of repose to suit customer needs.

CYLINDER

The wall panels are manufactured with S-350GD - Z600 hot dip Sendzimir galvanized high tensile steel sheets which can be painted upon request.

The static calculation is performed using an in-house developed software for each individual grain density as well as any local wind, snow and seismic loads.

WALL SHEET:

A) Shape is 104 mm corrugation and depth 12 mm in wall sheet which reduces friction and product residues.

B) Assembly by 2 to 4 rows of bolts according to the thickness and acting loads.

VERTICAL STIFFENER:

A) Standard omega section and junction.

B) Reinforced wide omega section and junction.

ANCHORAGE:

A) Base plate with double anchor bolts, mechanical or chemical type.

B) Spacer plates in order to compensate tolerance of the foundation (optional).

BOLTING

Roof panels are assembled with galvanized steel bolts and plastic seal washers. Stainless steel bolts can be delivered upon request.

Wall sheets are assembled by high tensile steel 8.8 or 10.9 quality, hot dip galvanized bolts with double steel and plastic seal washers.

Wall sheets are assembled by 2 to 4 rows of bolts, according to the thickness and acting loads.

Base plates are anchored to the concrete foundation by M16, 20, 24 galvanized mechanical or chemical bolts, according to the statics.

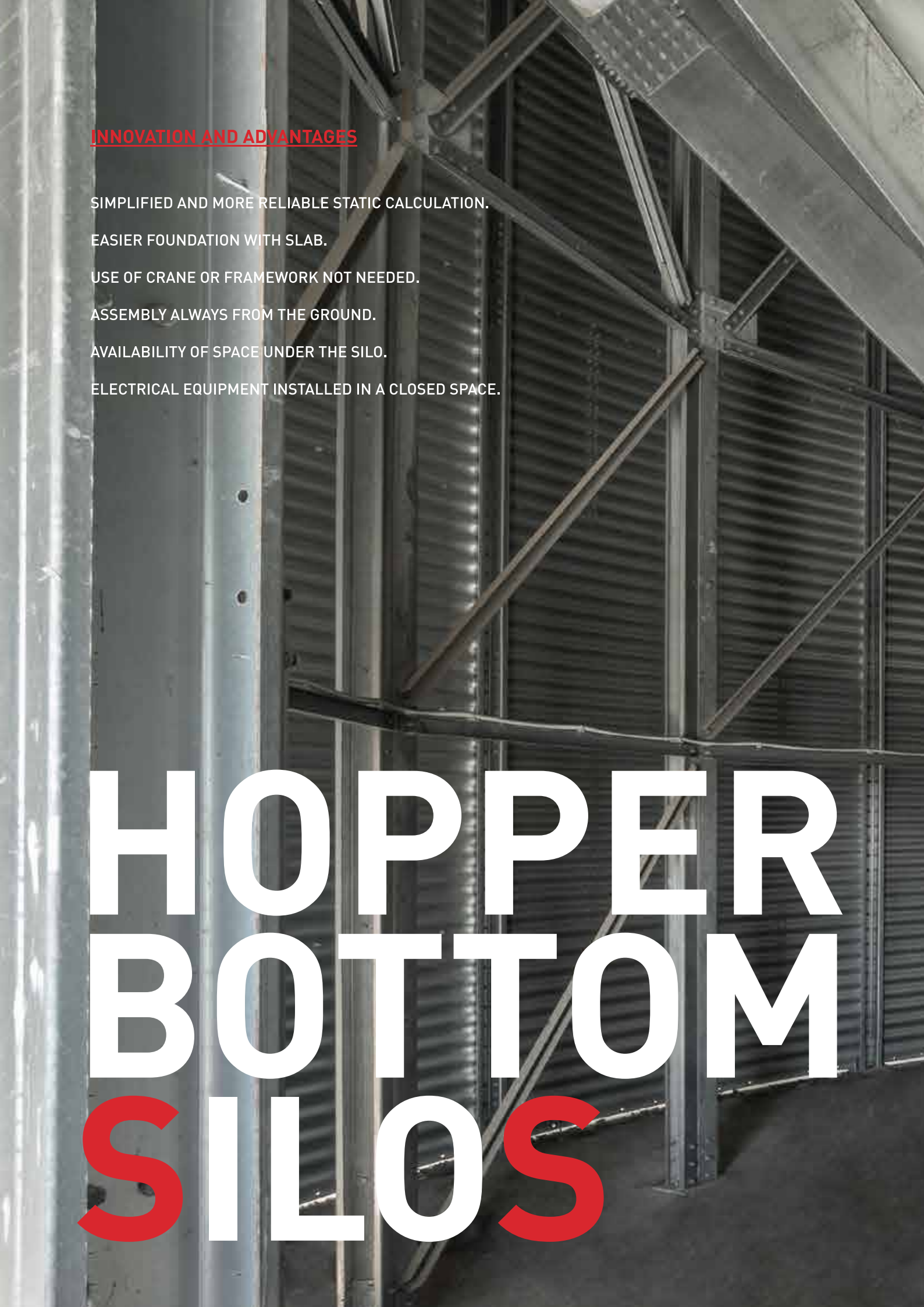
ROOF

BOLTINGS

SHEET

CYLINDER

INSPECTION DOORS



INNOVATION AND ADVANTAGES

SIMPLIFIED AND MORE RELIABLE STATIC CALCULATION.

EASIER FOUNDATION WITH SLAB.

USE OF CRANE OR FRAMEWORK NOT NEEDED.

ASSEMBLY ALWAYS FROM THE GROUND.

AVAILABILITY OF SPACE UNDER THE SILO.

ELECTRICAL EQUIPMENT INSTALLED IN A CLOSED SPACE.

HOPPER BOTTOM SILOS

SIMEZA corrugated steel sheet Hopper Bottom Silos are designed for agricultural and industrial plants such as drying plants, seed processing plants, storage plants, daily bins, dosing bins, bulk outload bins, industrial plants continuously fed with cereals such as flour mills, feed mills, rice mills, oil mills, and biofuel facilities.
They are used for the short/medium term storage of cereals, maize, soya, paddy, oil seeds and any other granulated free flowing materials.

They can be designed according to either ASAE/ANSI American or Euro-Code European norms as per tender specifications or client choice and are manufactured to withstand stress caused by continuous use, extreme temperatures, high winds, heavy snow and seismic loads. They also offer greater resistance to corrosion through thicker galvanization on the steel sheets.

SIMEZA Hopper Bottom Silos cover a wide range of models from 3.1 meters to 12.2 meters in diameter and from 14 to 2.500 m^3 individual capacity.

DETAILS >

ROOF

30° conical shape.

The roof panels are manufactured with S-350GD - Z 600 high tensile steel sheets or can be pre-painted galvanized steel sheet upon request.

The static calculation is performed by the finite element method for:

· Each individual local wind, snow and seismic load.

· Additional heavy duty loads of the catwalks on the roof.

· Temperature probe loads.

The roof is a self-supporting structure.

Roof panels are assembled with galvanized steel bolts and plastic seal washers. Stainless steel bolts can be delivered upon request.

The roof is equipped with:

A) d = 500 mm or d = 600 mm inlet flange.

B) Air vents allowing for the circulation of the existing air in the silos with the incoming grain.

C) Inspection hatch, located at the silo eave which allows for:

· Visual control of the stored product.

· Taking samples.

· Maintenance of the maximum level indicator.

This inspection hatch is equipped with a rest platform which can be reached either by a ladder fixed on the silo wall starting from ground level or by a drop down ladder from the catwalk fixed to a relevant post.

HOPPER

45° or 60° with d = 400 mm standard outlet flange and from 750 mm to 1400 mm outlet height.

INSPECTION DOORS

Hopper silos are equipped with a flanged access door located in the hopper which can be reached by a short mobile ladder or directly from the ground level.

CYLINDER

The wall panels are manufactured with S-350GD - Z600 hot dip Sendzimir galvanized high tensile steel sheets which can be painted upon request.

The static calculation is performed using an in-house developed software for each individual grain density as well as any local wind, snow and seismic loads.

WALL SHEET:

A) Shape is 104 mm corrugation which reduces friction and product residues.

B) Assembly by 2 or 3 rows of bolts according to the thickness and acting loads.

VERTICAL STIFFENER:

A) Standard omega section and junction.

B) Reinforced wide omega section and junction.

Wind rings, if necessary, according to the static calculation.

SUPPORTING STRUCTURE

STANDARD SOLUTION ("with skirt"), consisting of:

A) Self-supporting inner hopper (for diameters up to 5.30 meters).

B) Inner hopper with support structure for diameters from 6.10 to 12.20 meters.

C) Inner hopper and support structure manufactured with S-350GD steel, hidden by the silo wall itself.

D) Extended cylindrical wall of the silo itself, reinforced with double stiffeners.

E) Quick assembly, without crane.

BOLTING

Roof panels are assembled with galvanized steel bolts and plastic seal washers. Stainless steel bolts can be delivered upon request.

Wall sheets are assembled by high tensile steel 8.8 or 10.9 quality hot dip galvanized bolts with double steel and plastic seal washers.

Wall sheets are assembled by 2 or 3 rows of bolts, according to the thickness and acting loads.

ACCESS DOOR IN CYLINDER

ROOF AND CYLINDER

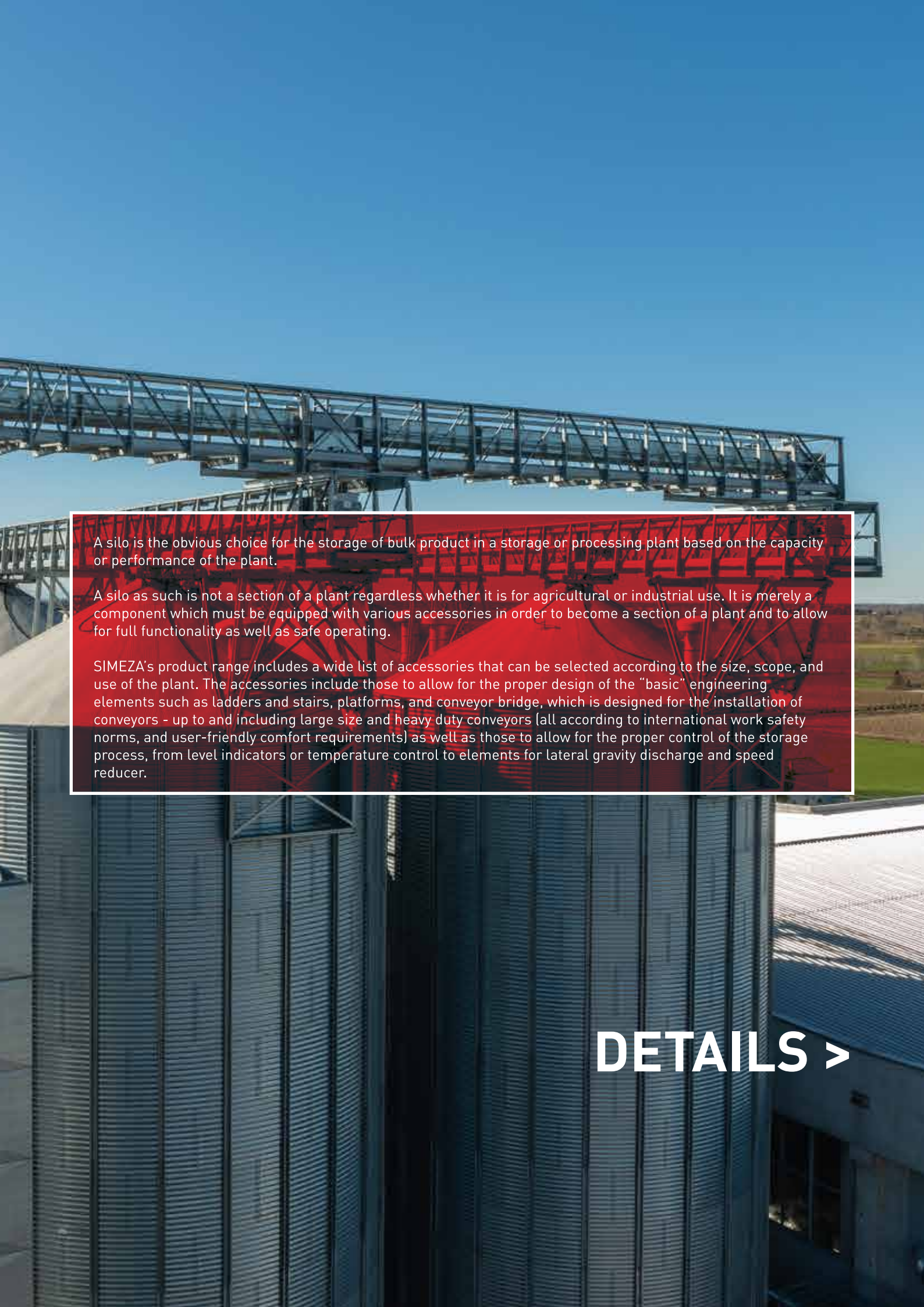
INSIDE OF SILO HOPPER

INSIDE OF SILO HOPPER

INSPECTION HATCH IN HOPPER

CENTRAL VENTILATION SYSTEM
(ALSO CENTRAL FUMIGATION SYSTEM)

ACCESSOIRES



A silo is the obvious choice for the storage of bulk product in a storage or processing plant based on the capacity or performance of the plant.

A silo as such is not a section of a plant regardless whether it is for agricultural or industrial use. It is merely a component which must be equipped with various accessories in order to become a section of a plant and to allow for full functionality as well as safe operating.

SIMEZA's product range includes a wide list of accessories that can be selected according to the size, scope, and use of the plant. The accessories include those to allow for the proper design of the "basic" engineering elements such as ladders and stairs, platforms, and conveyor bridge, which is designed for the installation of conveyors - up to and including large size and heavy duty conveyors (all according to international work safety norms, and user-friendly comfort requirements) as well as those to allow for the proper control of the storage process, from level indicators or temperature control to elements for lateral gravity discharge and speed reducer.

DETAILS >

STAIRS AND LADDERS

The filling of silos occurs through the inlet of the central dome of the roof through gravity piping or with an overhead conveyor requiring safe access to the area.

The inspection of the stored product is performed through the inspection hatch installed at roof eave also requiring safe access. Each silo storage plant must be unexceptionally equipped with stairs or ladders which allow for safe and quiet access to the overhead conveyor bridge or to the inspection platforms.

SIMEZA manufacturing range of stairs and ladders includes:

Stairs equipped with both side handrails and resting platforms, designed according to UNE EN ISO 14222, manufactured with S-250GD hot dip galvanized warm rolled steel profiles and usually supported by an independent steel structure or by the elevator tower. Stairs are designed and installed in order to be the main access for the whole conveyor bridge system of the plant and to prevent individual access to the various elevated platforms of the plant.

Ladders equipped with safety cages and resting platforms designed according to UNE EN ISO 14222, manufactured with S-250GD Z600 galvanized steel sheet are usually anchored to the silo wall or the post of the conveyor bridge. Ladders are mainly installed for rare use and as emergency exits.

Spiral stairs, directly supported by the silo wall allowing for quiet access to the individual silo eave but not to the overhead conveyor bridge.

PLATFORMS

SIMEZA's manufacturing range includes several standard steel platforms either for inspection purposes or as rest platforms along the stairs/ladders to comply with safety regulations.

CONVEYOR BRIDGES

SIMEZA's manufacturing range includes 2 types of conveyor bridges:

Up to 600 t/h conveyors: The bridges are a modular and open framework type designed to support the dead weight of their structure and conveyor, the product weight, the live load of maintenance operators as well as snow and wind loads according to UNE EN ISO 14222. The bridges are manufactured as standard in several widths from 1200 up to 3000 mm and made of S-250GD Z600 galvanized steel sheet. They are equipped with handrails on both sides as well as grated floors and are supported by posts directly anchored to the reinforced vertical stiffeners of the silo wall.

For heavy duty higher capacity conveying systems, the bridges are a modular and spatial framework type designed to support the dead weight of their structure and conveyor, the product weight, the live load of maintenance operators, as well as snow and wind loads according to UNE EN ISO 14222. The bridges are manufactured as standard in several widths from 1500 to 3000 mm and lengths from 12 to 36 m. They are made of S-250GD hot dip galvanized warm rolled profiles equipped with both side handrails and grated floors and are supported either by the reinforced vertical stiffeners of the silo wall or by an independent framework tower. Both bridge types are equipped with widened platforms close to the drive and tail stations of the conveyor allowing for proper maintenance access.

LEVEL INDICATOR

The control of the upper level of the stored product allows for proper filling and in general for proper operation of the control system of the silo.

Maximum level detectors are a standard accessory for all silos.

Minimum level detectors are a standard accessory for Hopper Bottom Silos.

Several types of detectors for maximum and minimum levels are available such as membrane, rotating paddle or capacitive type. They can be ATEX21 certified as optional.

Detectors for continuous level measurement can be installed on request in order to monitor the level of the stored product at any time.

TEMPERATURE CONTROL

The first parameter which warns of fermentation or infestation of the stored product is its temperature. In order to prevent these problems silos can be equipped with a distributed temperature control system for the product which includes:

A set of temperature probes hanging from the roof and homogeneously laid out and embedded in the stored product. The probes are equipped with temperature sensors that allow for monitoring of the temperature across the entire volume.

Software operating on an MS Windows base which is installed on the main plant control computer or on any other computer, PC, or tablet.

The software allows for.

A) Set up of alarm temperature for the entire monitoring system or for each individual sensor.

B) Time programmable or continuous monitoring of the temperature of all individual sensors of all silos with memory and/or printing function.

C) Warning of any temperature exceeding the setup to allow for quick reaction and avoidance of grain spoilage.

D) Automatic switch-on of the forced ventilation, in case that the external air allows for grain aeration. It can be activated worldwide through smartphones or tablets.

The installation of the temperature probes involves the installation of reinforced and additional roof beams.

SIMEZA's product range includes the supply of the above mentioned complete temperature control system, with ATEX 21 certified probes.

AERATION

The stored products are mainly cereals, wheat, maize, paddy, oilseeds and other grain crops and these organic substances exchange oxygen with the air in the intra-grain spaces. This process is exothermic and generates heat and water in the product, both of which can create problems such as fermentation or clogging. The easiest method to remove the heat and evaporate the water is forced ventilation performed by external electrical fans blowing the outside air or refrigerated air into the stored product. To this extent the floor of the silos must be equipped with one of following systems included in the manufacturing range of SIMEZA:

MESH PATTERNED CHANNELS: Embedded in the concrete floor of flat bottom silos allowing for the homogeneous distribution of ventilating air. The channels are covered by perforated steel sheet panels designed to support the loads of the superimposed product and prevent the stored grains -even small round rapeseed- from entering. In order to prevent contamination by insects all panels can be easily removed and residual dust in the channels can be aspirated.

PERFORATED FLOOR: Made of steel sheet panels supported by a set of steel columns covering the whole section of the silos, designed to support the loads of the superimposed product and prevent the stored grains -even the small round rape seed- from entering.

Steel channels installed in the hopper of Hopper Bottom Silos with circumferential layout which allow for the homogeneous distribution of the ventilated air into the product without limiting gravity discharge.

ROOF AIR VENT AND FAN

In order to compensate the volume of incoming product the roof of the silo must be equipped with vents allowing for the expulsion of the existing air. The same is required in reverse when the silos are emptied. SIMEZA silos are standard equipped with circulation vents.

When the silo is equipped with an aeration system and forced ventilation, the number, the total section, and the layout of the vents must be designed to allow for the homogeneous exit of the forced air without creating counter pressure.

The SIMEZA aeration system includes the supply of additional roof air vents designed as above.

The air leaving the stored product as a consequence of the forced aeration is usually warm and humid and can allow for water condensation on the cooler lower surface of the roof. This water will run along the inclined roof surface and affect the upper product at the periphery of the silo. In order to prevent this problem, the SIMEZA product range includes electrical extraction fans. These are installed in the roof in order to create an accelerated air flow along the lower surface of the roof and inhibit condensation.

SWEEP AUGER

Flat Bottom Silos cannot be completely emptied by gravity as the stored products are granular (not liquid) and have an internal friction which does not allow for gravity discharge of the final cone. Sweep augers can be installed on the floor of the silos to convey the residual product to the central outlet. They are equipped with a central pivot and electrically operated drive unit as well as a peripheral mechanically operated drive which allow for simultaneous planetary rotation and radial conveying of the product.

The SIMEZA manufacturing range includes N°2 size of sweep auger, for 50 and 100 t/h capacity, both with ATEX 21 certification.

LATERAL GRAVITY DISCHARGE

Silos can be equipped with a set of special buckets installed on the silo wall which allow for discharge of a significant portion of the stored product, by gravity, directly on to truck.

GRAIN FALL SPEED REDUCER

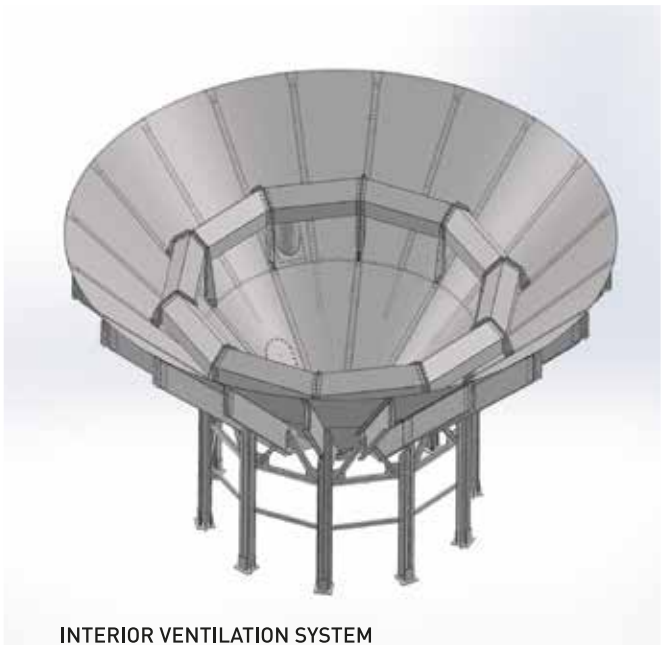
Seed cannot include broken grains as they reduce germination capacity. In order to prevent mechanical impact of the incoming grain against the bottom of the silo or the stored grain after a long drop, silos can be equipped with a grain fall speed reducer. It is installed along the wall of the silo and softly accompanies the grain during the movement to its final destination in the silo.

PLATFORMS

STAIRS

SPECIAL ROOF FOR FUMIGATION SYSTEM

CATWALK FOR CONVEYORS AND MAINTENANCE



INTERIOR VENTILATION SYSTEM

TEMPERATURE CONTROL

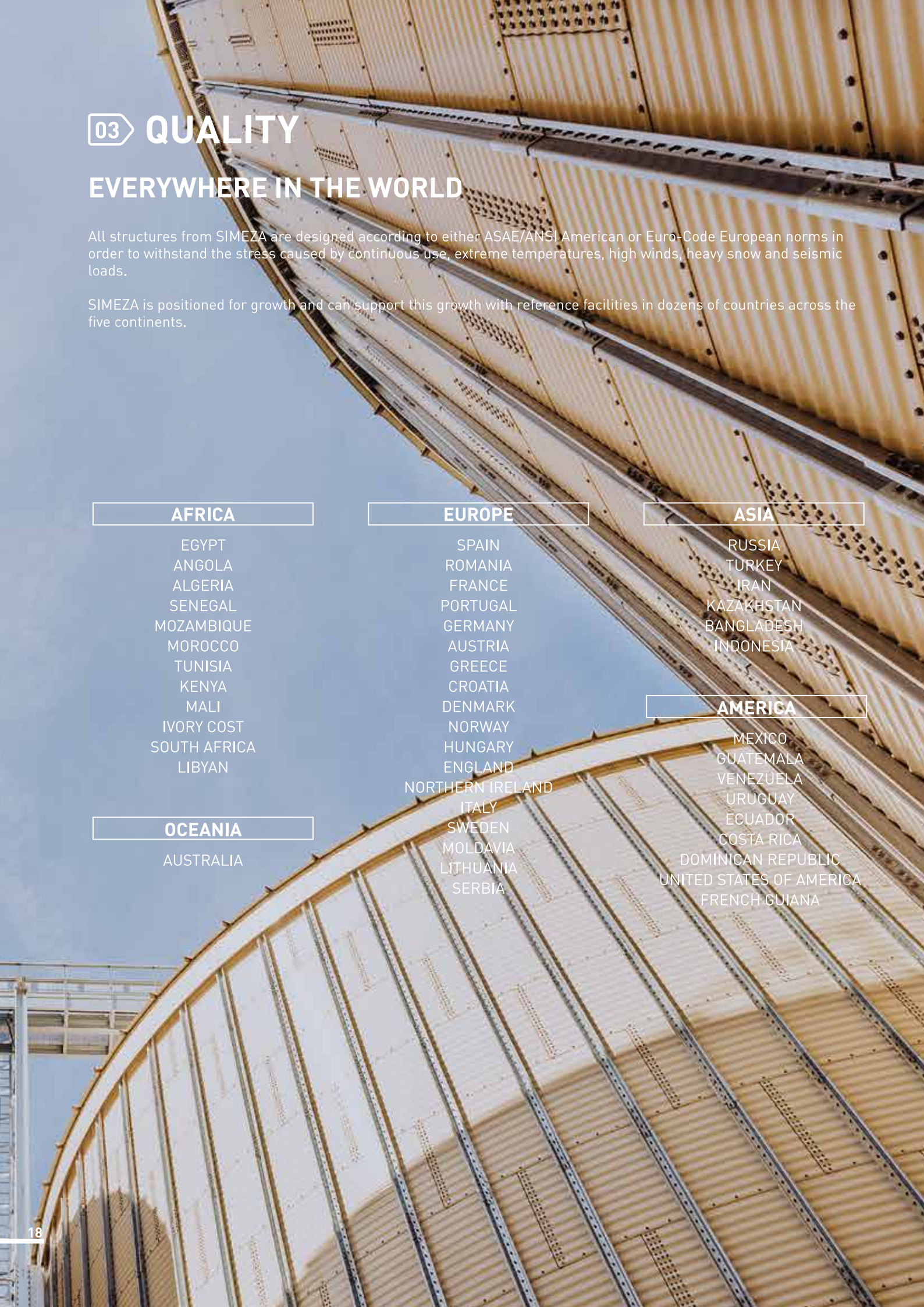
ROOF VENTS

LADDERS EQUIPPED WITH SAFETY CAGES

SWEEP AUGER

LATERAL GRAVITY DISCHARGE

GRAIN FALL SPEED REDUCER



03 QUALITY

EVERYWHERE IN THE WORLD

All structures from SIMEZA are designed according to either ASAE/ANSI American or Euro-Code European norms in order to withstand the stress caused by continuous use, extreme temperatures, high winds, heavy snow and seismic loads.

SIMEZA is positioned for growth and can support this growth with reference facilities in dozens of countries across the five continents.

AFRICA

EGYPT
ANGOLA
ALGERIA
SENEGAL
MOZAMBIQUE
MOROCCO
TUNISIA
KENYA
MALI
IVORY COST
SOUTH AFRICA
LIBYAN

OCEANIA

AUSTRALIA

EUROPE

SPAIN
ROMANIA
FRANCE
PORTUGAL
GERMANY
AUSTRIA
GREECE
CROATIA
DENMARK
NORWAY
HUNGARY
ENGLAND
NORTHERN IRELAND
ITALY
SWEDEN
MOLDAVIA
LITHUANIA
SERBIA

ASIA

RUSSIA
TURKEY
IRAN
KAZAKHSTAN
BANGLADESH
INDONESIA

AMERICA

MEXICO
GUATEMALA
VENEZUELA
URUGUAY
ECUADOR
COSTA RICA
DOMINICAN REPUBLIC
UNITED STATES OF AMERICA
FRENCH GUIANA

SIMEZA

SIMEZA

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