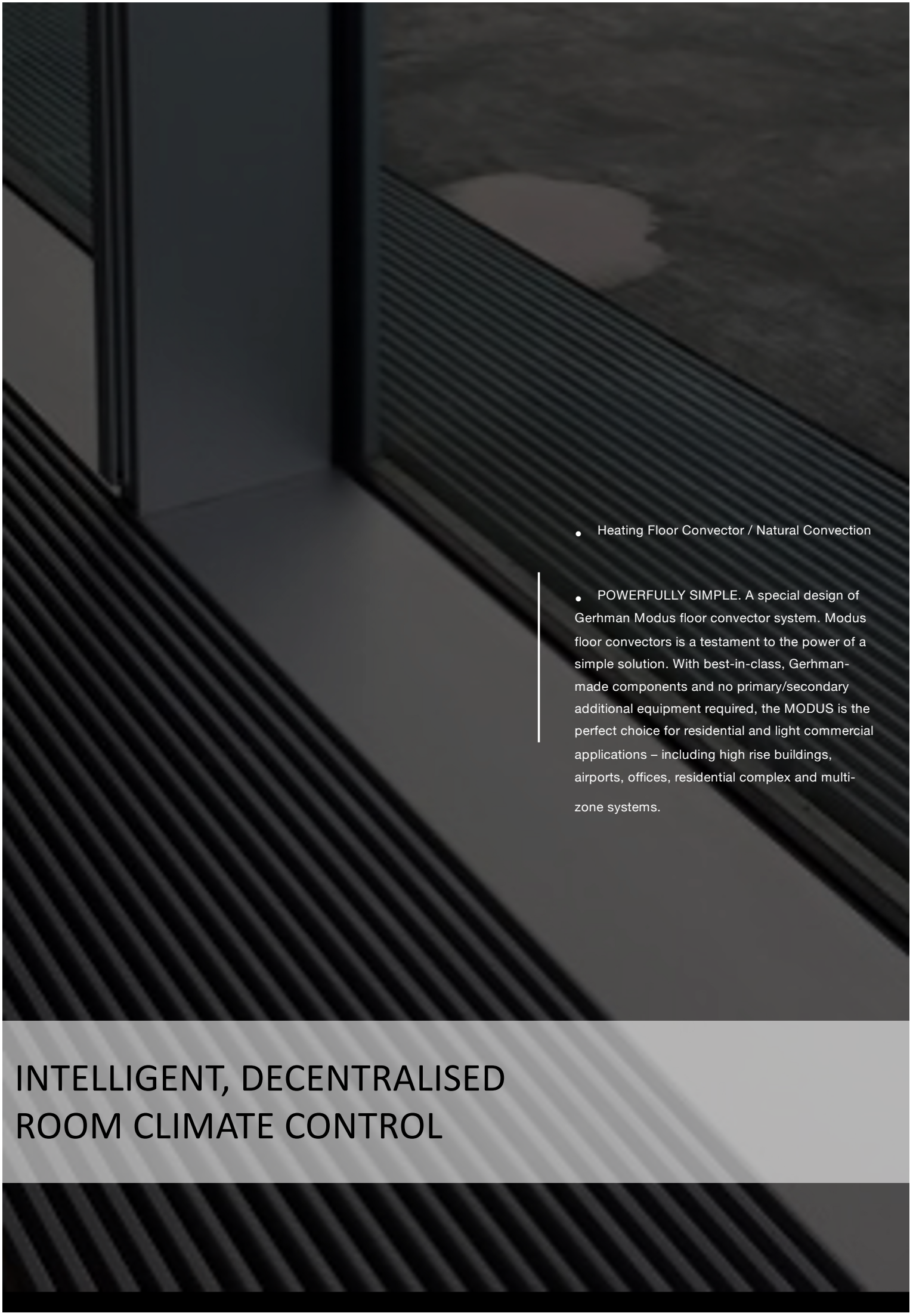
GERHMAN

Trench Technology

MODUS

Natural Convection Floor Convector

EN EURONORM 442



- Heating Floor Convector / Natural Convection

- POWERFULLY SIMPLE. A special design of Gerhman Modus floor convector system. Modus floor convectors is a testament to the power of a simple solution. With best-in-class, Gerhman-made components and no primary/secondary additional equipment required, the MODUS is the perfect choice for residential and light commercial applications – including high rise buildings, airports, offices, residential complex and multi-zone systems.

INTELLIGENT, DECENTRALISED ROOM CLIMATE CONTROL

FOR HEATING

Trench Technology

MODUS

POWERFULLY SIMPLE. The Modus, floor convector is a testament to the power of a simple solution. With best-in-class, Gerhman-made components and no additional primary/secondary equipment required, the Modus is the perfect choice for residential and light commercial applications – including high rise buildings, airports, residential applications, offices and multi-zone systems

- **Decentralized climate** concepts differ from centralized systems because they are planned and installed 'room by room'. The space to be ventilated can be extended to several rooms by taking clever additional measures.

There are many reasons for using decentralized climate systems:

•Protection and conservation of the building fabric
•Prevention of mould formation
•Assistance in eliminating moisture damage
•Domestic ventilation according to DIN1946-6 in the living area and the basement in order to achieve a good air quality
•Preservation of a constant climate to protect the valuables in museums and archives
•and many more

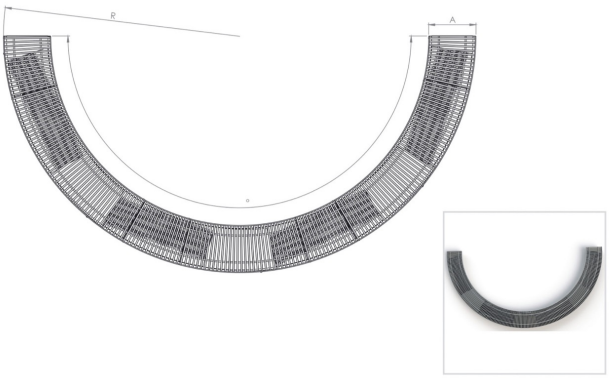
Energy-efficient solution

A much more energy-efficient and reliable solution is an intelligent indoor climate control system.

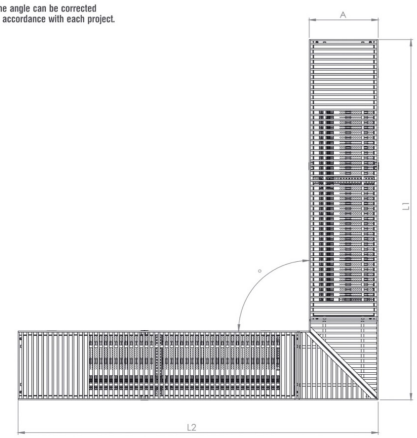
EURONORM EN 442

MITRED CORNERS

CURVED TRENCH TECHNOLOGY

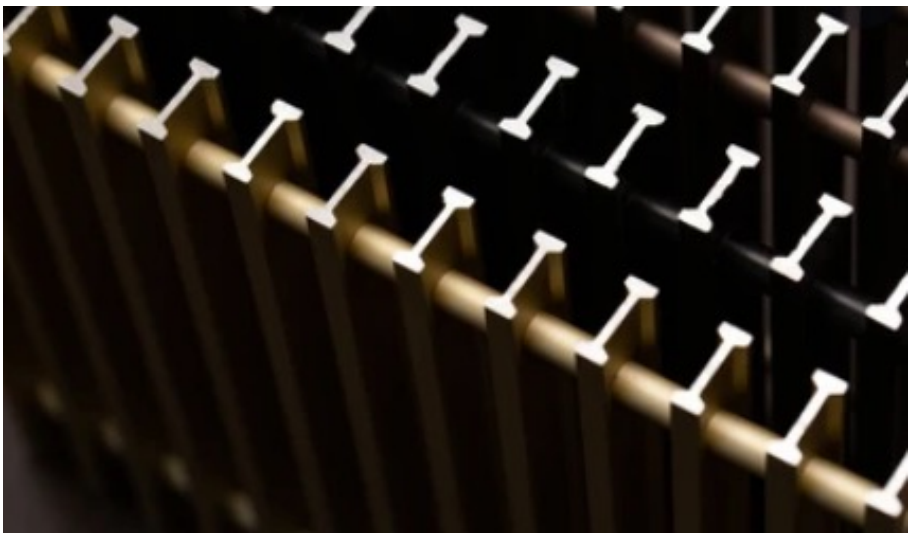


The angle can be corrected in accordance with each project.



GRILLS

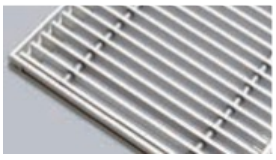
MODUS



ALUMINIUM GRILLS

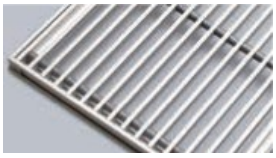
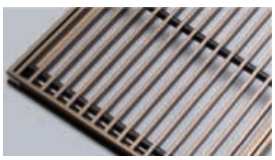
ROLL-UP GRILLS

The spacing between spring loaded transverse lamellas of aluminium alloy is delimitated by residual rollers made of cured plastic. The lamellas have anodized and tinted surface. Any RAL shade may be reached by powder colour coating.



LINEAR GRILLS

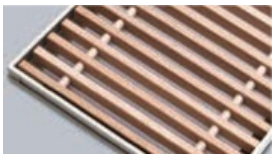
Lengthwise perforated aluminium lamellas are linked by carrying steel bar. Residual rollers of cured plastic delimitate the spacing.

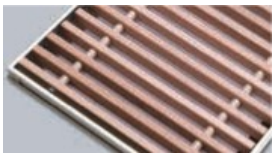




WOODEN GRILLS

ROLL-UP GRILLS

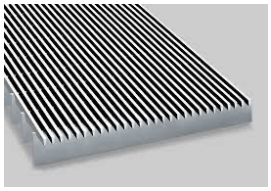
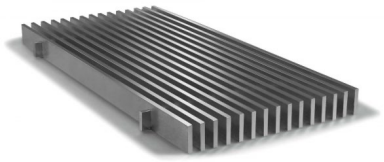
The spacing between spring loaded oak or beech lamellas is delimitated by residual rollers made of cured plastic. The surface is raw or stained.



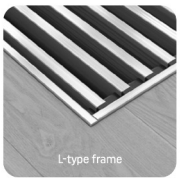


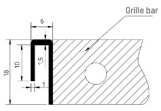
STAINLESS STEEL GRILLS

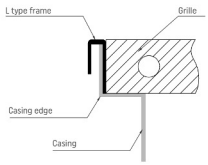
Stainless steel rectangular profiles are linked by steel drawbars. The spacing of lamellas is delimitated by residual metal rollers. A fix non-rolling grill.

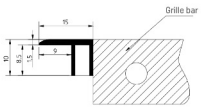




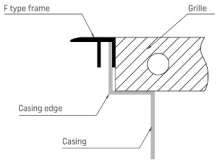
FRAMES

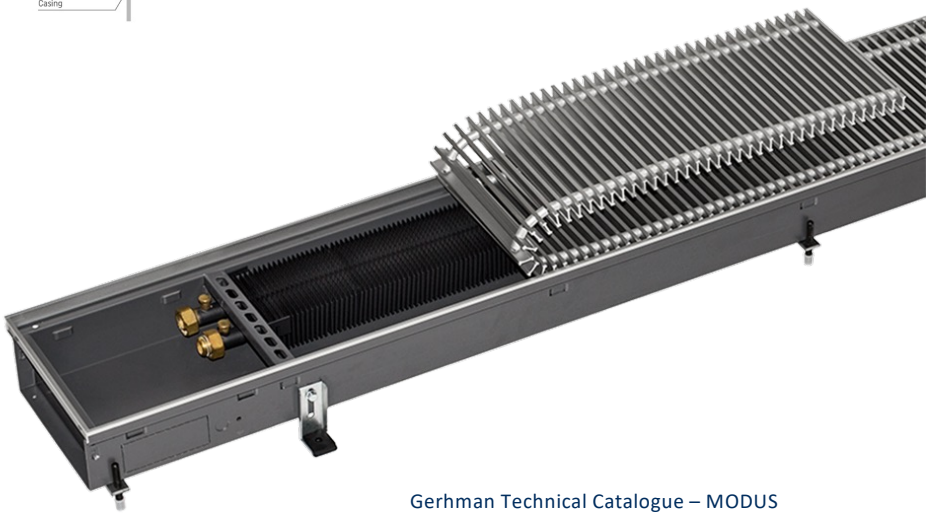












Information on design

MODUS are suitable for use in all kinds of buildings.

They are generally positioned directly in front of the external façade without a large gap. MODUS can provide cost-effective heating, particularly in front of large areas of glazing.

Heat performance
The heat outputs were calculated based on EN442-2

Outlet
MODUS are positioned with output on the façade side. If it is arranged on the room side, the high air output would result in lower levels of comfort in the occupied zone.

Modus:
Heating from the floor with 2 pipe system units.

Product data

MODUS 31 / 32 / 33

- Natural convection floor convectors principle of operation is natural air convection.
- Range up to 2,5 kW
- They are distinguished for their silent operation.
- Extensive range of control accessories
- Roll-up and linear grilles with colour-coordinated spacers

Performance data

Heat output (W)[1] 146-2593

1.1) at LPHW 90/70 °C, tL1 = 20 °C

Operating limits

` Max. operating pressure: 12 bar

` Max. entering water temperature: 120 °C ` Min. entering water temperature: 5 °C ` Inlet air temperature: 40 °C

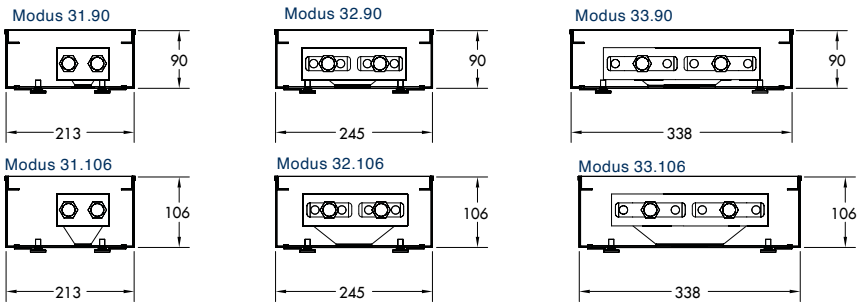
` Max. glycol volume: 50 %

Quick selection

	Model	Heat output (W)	Height (mm)	Width (mm)	Length (mm)
Mono Unit	Modus 31.90	213	90	213	1250
	Modus 32.90	346	90	245	1250
	Modus 33.90	458	90	338	1250
	Modus 31.106	213	106	213	1250
	Modus 32.106	346	106	245	1250
	Modus 33.106	458	106	338	1250

1) at LPHW 90/70 °C, tL1 = 20 °C,

Technical drawing



Performance data I Modus — Height 90 mm

Height
90 mm

Operation		90 / 70°C			80 / 60°C			70 / 55°C			55 / 45°C			50 / 40°C		
		Modus Type														
Casing Length (mm)	Coil Length (mm)	Modus 31	Modus 32	Modus 33	Modus 31	Modus 32	Modus 33	Modus 31	Modus 32	Modus 33	Modus 31	Modus 32	Modus 33	Modus 31	Modus 32	Modus 33
950	650	146	236	314	115	184	240	94	147	189	60	92	114	48	71	86
1250	950	213	346	458	169	269	351	137	215	276	88	134	165	70	104	126
1550	1250	280	454	603	222	354	462	181	284	364	116	176	218	92	137	166
1850	1550	347	564	748	275	439	572	225	352	451	144	219	269	114	170	206
2150	1850	414	673	893	329	525	683	268	419	538	172	261	322	137	203	247
2450	2150	481	782	1038	382	609	794	311	488	625	200	303	375	159	236	286
2750	2450	548	891	1183	436	694	904	354	556	712	228	345	426	181	269	326
3050	2750	615	1000	1328	489	780	1015	398	624	799	256	387	479	203	302	366
3350	3050	682	1109	1473	542	864	1126	442	692	886	284	430	531	225	335	406
3650	3350	749	1218	1618	595	949	1237	485	760	974	312	472	583	247	368	446
3950	3650	817	1327	1763	648	1034	1347	528	828	1061	340	514	636	270	401	486
4250	3950	884	1436	1908	702	1119	1458	571	896	1148	368	557	687	292	434	525
4550	4250	951	1546	2053	755	1204	1569	615	964	1236	396	599	740	314	467	566
4850	4550	1018	1654	2197	808	1289	1680	658	1032	1323	424	641	792	336	499	606

Heating Capacity (W)

1.Values rounded up within the measurement tolerances.
2.Performance tested according to EN442-2

Functions

•Room heating (primary or secondary heating),

•Maintenance of uniform air circulation field in the room, and thereby, uniform distribution of heat throughout the room,

•Increasing of cold areas surface temperature,

•Prevention of condensation build-up on glass surfaces,

•Prevention of ingress of cold outside air through big glass surfaces,

Performance data I Modus

Height 106 mm

Height
106 mm

Operation		90 / 70°C			80 / 60°C			70 / 55°C			55 / 45°C			50 / 40°C		
		Modus Type														
Casing Length (mm)	Coil Length (mm)	Modus 31	Modus 32	Modus 33	Modus 31	Modus 32	Modus 33	Modus 31	Modus 32	Modus 33	Modus 31	Modus 32	Modus 33	Modus 31	Modus 32	Modus 33
950	650	172	279	370	136	217	283	111	174	223	71	108	134	57	84	102
1250	950	251	408	541	199	318	414	162	254	326	104	158	195	83	123	149
1550	1250	330	536	712	262	418	545	213	335	429	137	208	257	109	162	196
1850	1550	409	665	883	325	518	675	265	415	532	170	258	318	135	201	243
2150	1850	488	794	1054	388	619	806	316	495	635	203	308	380	162	240	291
2450	2150	568	923	1225	451	719	937	367	576	737	236	357	442	188	279	338
2750	2450	647	1051	1396	514	819	1067	418	656	840	269	407	503	214	317	385
3050	2750	726	1180	1567	577	920	1198	470	736	943	302	457	565	240	356	432
3350	3050	805	1309	1738	640	1020	1329	521	817	1046	335	507	627	266	395	479
3650	3350	884	1437	1909	702	1020	1460	572	897	1149	368	557	688	292	434	526
3950	3650	964	1566	2080	765	1220	1590	623	977	1252	401	607	750	319	473	573
4250	3950	1043	1695	2251	828	1321	1721	674	1057	1355	434	657	811	345	512	620
4550	4250	1122	1824	2422	891	1421	1852	726	1138	1458	467	707	873	371	551	668
4850	4550	1201	1952	2593	954	1521	1982	777	1218	1561	500	756	935	397	589	715

Heating Capacity (W)

1.Values rounded up within the measurement tolerances.
2.Performance tested according to EN442-2

Functions

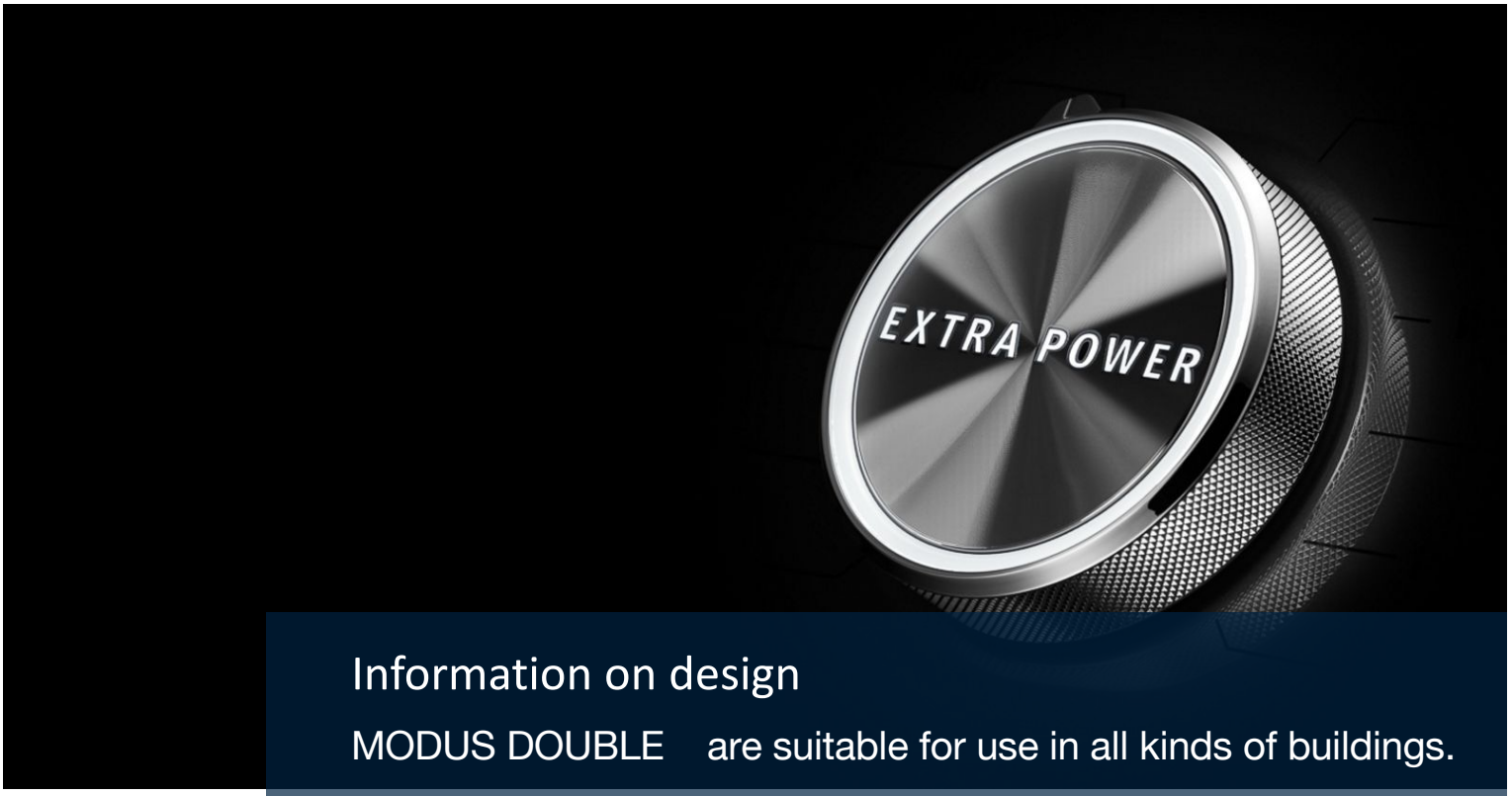
•Room heating (primary or secondary heating),

•Maintenance of uniform air circulation field in the room, and thereby, uniform distribution of heat throughout the room,

•Increasing of cold areas surface temperature,

•Prevention of condensation build-up on glass surfaces,

•Prevention of ingress of cold outside air through big glass surfaces,



Information on design

MODUS DOUBLE are suitable for use in all kinds of buildings.

They are used where the natural convection type floor Convectors are selected as Primary heating system. Double raw coil with 2-pipe operation.

Heat performance
The heat outputs were calculated based on EN442-2

Outlet
MODUS DOUBLE are positioned with output on the façade side. If it is arranged on the room side, the high air output would result in lower levels of comfort in the occupied zone.

Product data

MODUS DOUBLE 31-D / 32-D / 33-D

- Naturally powered convection floor convectors principle of operation is natural air convection.
- Range up to 4,7 kW
- They are distinguished for their silent operation.
- Extensive range of control accessories
- Roll-up and linear grilles with colour-coordinated spacers
- Double raw coil with 2-pipe operation
- High heat output

Performance data

Heat output (W)[1]	267-4743

1.1) at LPHW 90/70 °C, tL1 = 20 °C

Operating limits

` Max. operating pressure: 12 bar

` Max. entering water temperature: 120 °C ` Min. entering water temperature: 5 °C ` Inlet air temperature: 40 °C

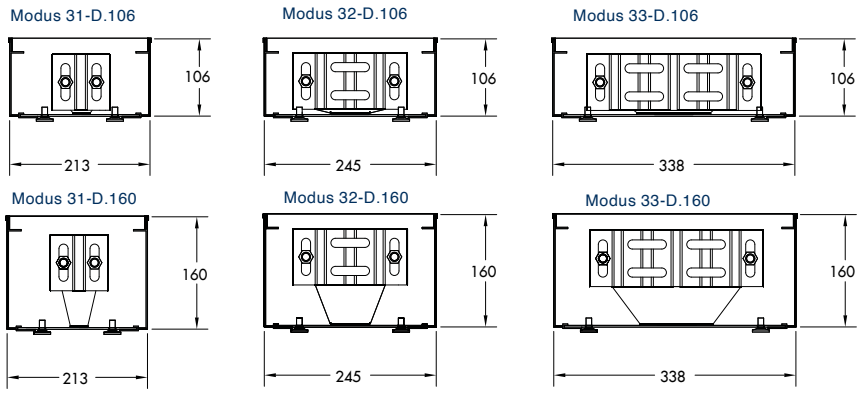
` Max. glycol volume: 50 %

Quick selection

	Model	Heat output	Height	Width	Length
		(W)	(mm)	(mm)	(mm)
Double Unit	Modus 31-D.106	389	106	213	1250
	Modus 32-D.106	632	106	245	1250
	Modus 33-D.106	839	**106**	338	1250
	Modus 31-D.160	459	160	213	1250
	Modus 32-D.160	**746**	**160**	245	1250
	Modus 33-D.160	**989**	**160**	338	1250

1) at LPHW 90/70 °C, tL1 = 20 °C,

Technical drawing



Performance data I Modus Double — Height 106 mm

Height
106 mm

Operation		90 / 70°C			80 / 60°C			70 / 55°C			55 / 45°C			50 / 40°C		
		Modus Type														
Casing Length (mm)	Coil Length (mm)	Modus 31-D	Modus 32-D	Modus 33-D	Modus 31-D	Modus 32-D	Modus 33-D	Modus 31-D	Modus 32-D	Modus 33-D	Modus 31-D	Modus 32-D	Modus 33-D	Modus 31-D	Modus 32-D	Modus 33-D
950	650	267	432	574	208	332	433	169	264	339	106	161	200	85	125	152
1250	950	389	632	839	304	487	633	246	386	496	155	235	291	124	183	222
1550	1250	512	831	1104	401	640	834	324	509	652	204	310	383	162	241	292
1850	1550	634	1031	1369	497	793	1033	403	631	809	253	384	474	201	299	362
2150	1850	756	1231	1634	594	947	1233	480	752	965	302	459	566	241	358	434
2450	2150	880	1431	1899	690	1100	1434	558	876	1120	352	532	659	280	416	504
2750	2450	1003	1629	2164	786	1253	1633	635	997	1277	401	606	749	319	472	574
3050	2750	1125	1829	2429	883	1408	1833	714	1119	1433	450	681	842	358	530	644
3350	3050	1248	2029	2694	979	1561	2033	792	1242	1590	499	755	934	396	589	714
3650	3350	1370	2227	2959	1074	1714	2234	869	1363	1746	548	830	1025	435	647	784
3950	3650	1494	2427	3224	1170	1867	2433	947	1485	1903	597	904	1118	475	705	854
4250	3950	1617	2627	3489	1267	2021	2633	1024	1607	2060	647	979	1208	514	763	924
4550	4250	1739	2827	3754	1363	2174	2834	1104	1730	2216	696	1053	1301	553	821	995
4850	4550	1862	3026	4019	1460	2327	3032	1181	1851	2373	745	1126	1393	592	878	1065

Heating Capacity (W)

1.Values rounded up within the measurement tolerances.
2.Performance tested according to EN442-2

Functions

•Room heating (primary or secondary heating),

•Maintenance of uniform air circulation field in the room, and thereby, uniform distribution of heat throughout the room,

•Increasing of cold areas surface temperature,

•Prevention of condensation build-up on glass surfaces,

•Prevention of ingress of cold outside air through big glass surfaces,

Performance data I Modus

Height 160 mm

Height
160 mm

Operation		90 / 70°C			80 / 60°C			70 / 55°C			55 / 45°C			50 / 40°C		
		Modus Type														
Casing Length (mm)	Coil Length (mm)	Modus 31-D	Modus 32-D	Modus 33-D	Modus 31-D	Modus 32-D	Modus 33-D	Modus 31-D	Modus 32-D	Modus 33-D	Modus 31-D	Modus 32-D	Modus 33-D	Modus 31-D	Modus 32-D	Modus 33-D
950	650	315	510	677	246	392	511	199	312	400	125	190	236	100	148	179
1250	950	459	746	989	359	574	747	291	456	585	183	278	343	146	216	262
1550	1250	604	980	1302	473	755	984	382	601	769	241	366	452	192	285	345
1850	1550	748	1216	1615	587	935	1219	475	744	954	299	454	559	237	353	427
2150	1850	893	1452	1928	700	1118	1455	567	888	1139	357	542	668	285	422	512
2450	2150	1039	1688	2241	814	1298	1692	658	1033	1322	415	628	777	331	491	594
2750	2450	1183	1922	2553	928	1479	1926	750	1177	1507	473	716	884	376	557	677
3050	2750	1328	2158	2866	1042	1661	2163	843	1320	1691	531	803	993	422	626	760
3350	3050	1472	2394	3179	1155	1842	2399	934	1465	1876	589	891	1102	468	694	842
3650	3350	1617	2628	3492	1267	2022	2636	1026	1609	2061	647	979	1210	513	763	925
3950	3650	1763	2864	3804	1381	2203	2871	1117	1752	2246	705	1067	1319	561	832	1007
4250	3950	1908	3100	4117	1495	2385	3107	1209	1896	2430	763	1155	1426	607	900	1090
4550	4250	2052	3336	4430	1609	2565	3344	1302	2041	2615	821	1243	1535	652	969	1174
4850	4550	2197	3570	4743	1722	2746	3578	1394	2185	2800	879	1329	1644	698	1036	1257

Heating Capacity (W)

1.Values rounded up within the measurement tolerances.
2.Performance tested according to EN442-2

Functions

•Room heating (primary or secondary heating),

•Maintenance of uniform air circulation field in the room, and thereby, uniform distribution of heat throughout the room,

•Increasing of cold areas surface temperature,

•Prevention of condensation build-up on glass surfaces,

•Prevention of ingress of cold outside air through big glass surfaces,

GERHMAN

Control options

Heating MODUS units are designed to be installed in a floor void. One can distinguish two basic models of this product that are different through the way they are build and function:

2-PIPES MODUS UNITS
The heat exchanger has only a single pipe circuit that can be used for heating or cooling. Only one set of valves and thermal actuator is required.

As MODUS is a part of the heating system in the building they proper operation rely on:

- central heating installation being fitted correctly

- the valves and controls have been fitted, connected and configured properly.

The complete set of controls includes:

- room air controller that should be connected to the thermal actuators
- Temperature Controller measure the ambient temperature to keep it on the constant, required level:
- by adjusting the thermostatic valve opening/closing angle

Due to the ambient temperature sensor the Room Temperature Controller should not be covered by any obstacles such as furniture or curtains.

Each heating zone should be controlled by the single Room Temperature Controller.

For BMS systems Room Controller and Temperature sensor is usually split into 2 separate devices.

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Trench Technology

MODUS

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