



**Steel tanks**  
**Wastewater treatment plants**  
**Biogas stations**



**WITKOWITZ**

ENVI

# Steel tanks

## Enamelled, Stainless steel, Epoxy-coated

WITKOWITZ ENVI has continued the tradition of manufacturing bolted steel tanks manufactured since 1966. Thanks to the high quality of production technology, rich experience and good references, our company exports products to the whole world. Steel tanks can be used for storing liquid and loose materials. Our tanks are also an essential building block of environmental technological units, such as waste water treatment plants, biogas stations or liquid fertilizer storages.

The tank shell consists of sheets connected by bolts and sealed with permanently elastic sealant. It is reinforced with angles. The bottom is usually made of reinforced concrete slab, or the bottom is welded steel. The tank accessories intended for the tank use are inspection entries, ladders, platforms, stairs, auxiliary and technological constructions, piping, agitators, pumps, thermal insulation, grounding, etc. The tank can be covered with a roof. The tanks are dimensioned in accordance with ISO 28765, EN 1990, 1991 and AWWA D103.



1. Aguascalientes, Mexico, 2. Aptunion, France  
 3. Nyárlőrinc, Hungary, 4. Ambatolampy, Madagascar



## Use

### Loose materials

- limestone
- cement
- fly ash
- wood waste
- gravel
- granules
- salt
- carbon black

### Liquids

- drinking water
- wastewater
- fire water
- desalinated w.
- brine
- diesel

### Agriculture

- cereals
- slurry
- liquid fertilizers
- compound feed
- silage

### Other

- tanks for WWTP
- tanks for BGS
- gas tanks
- fermenters

## Why to buy our steel tanks

- excellent anticorrosive properties of enamel
- proven long life time of tanks
- High abrasion resistance and chemical resistance
- high variability of tank design (diameter, height, pipe connection)
- high variability in the placement of technological equipment (pumps, mixers, heating)

### Another benefits

- very fast construction
- experience with installations throughout the world even in extreme conditions
- easy transport of the tank in the unfolded condition to its destination
- small built-up area, low tank weight
- permanent visual inspection of the condition and tightness
- Easy disassembly and recycling at the end of its useful life or recovery
- possibility of rebuilding or relocating an already built tank

# Tank scheme

## 1. Roofs

- self-supporting steel
- plastic
- textile
- aluminium
- trapezoidal
- membrane steel
- with integrated gas tank

## 2. Auxiliary structures

- ladders
- platforms
- pedestrian walkways
- other technological constructions

## 3. Insulation

- the steel tank can be supplemented with thermal insulation covered with trapezoidal sheet

## 4. Bottom

- waterproofing concrete
- welded steel

## 5. Joints

- the plates are connected with special plastic-coated pan head bolts
- all joints are sealed with elastic silicone or polyurethane sealant

## 6. Accessories

- pipes and fittings
- revision inputs
- flanges, etc.

## 7. Technology

- agitators
- pumps
- fittings and others



# Services

## Design and construction activities

As a traditional tank manufacturer, we offer not only its manufacture, but also design and construction work, including preparation and processing of documentation. We have our own team of designers for the design of technological units and production documentation of tanks. Based on many years of experience, we propose an optimum technical solution in accordance with customer requirements. We cooperate with external design companies around the world on foreign projects to meet the local regulations and take into account the requirements of the investor when creating a regionally focused product.

- own team of experienced designers and engineers
- designs of technological units (waste water treatment plants, biogas stations)
- production documentation of new steel tanks and steel tanks
- structures, including their reconstruction
- elaboration of technical-economic studies within the framework of capital construction
- technical designs of technological units reconstructions

## Assembly, inspection and reconstruction of tanks

In addition to the design and construction activities, we also provide installation of new tanks, dismantling, revision and reconstruction of existing tanks.

We have the know-how to ensure any reconstruction of the original tanks, including the possibility of documenting the production design documentation of the original tanks. Thanks to this knowledge, we will ensure the safety of the work carried out and determine the requisites of the performed reconstruction project. We assess the current technical condition of the tanks in relation to their further use, both in terms of the type of stored medium and in terms of the expected further service life.

### These activities include:

- evaluation of the current technical condition of the tank
- information on the expected service life of the tank
- assessment of possibilities and proposal of further use of the tank
- assessment of options and proposal of further use of the tank
- recommendations for suitability for storage the media
- complete renovation
- tank capacity adjustment

Our screwed aboveground steel tanks are characterized by a quick assembly and an easy disassembly. As a manufacturer of these tanks, we offer a service of assembly. Based on many years of experience, we are able to realize assemblies all over the world. We will design the best solution for carrying out and eventual repairs or reconstructions, which will extend the service life of the tanks. We have our own assembly capacities, thanks to which we are able to assemble all products and technological units of our own production. Our fitters have the necessary qualifications and are linguistically equipped for assembly abroad.

### Our advantages

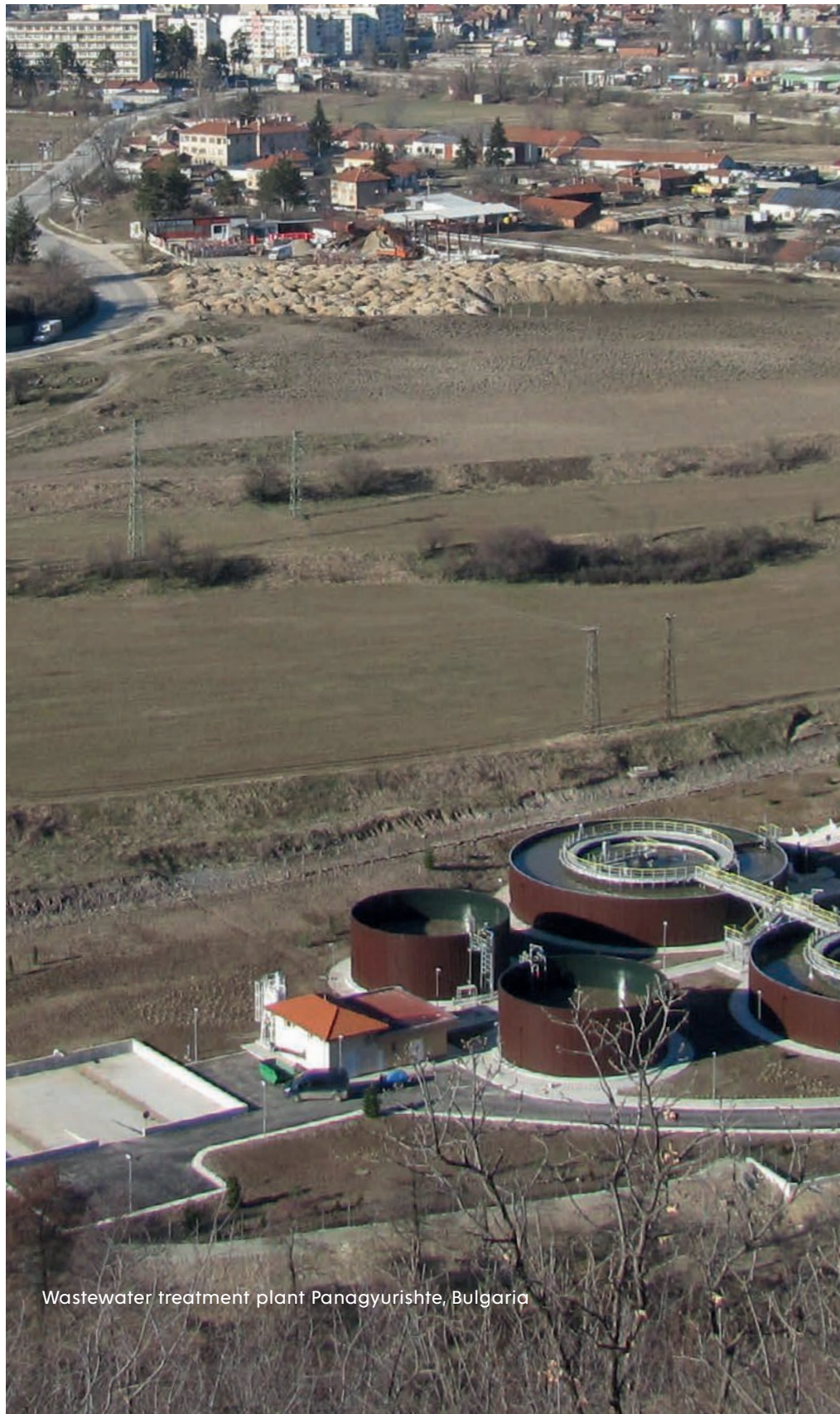
- own assembly and production capacities
- know-how for assembly and disassembly of all technological units
- many years of experience
- references and implementation worldwide



# Wastewater treatment plants

The company WITKOWITZ ENVI a.s. has been engaged in the design, production and implementation of wastewater treatment plants (WWTP) for municipal and industrial sectors for 40 years. WWTPs are mostly designed on the basis of steel tanks of their own production and have found their customers all over the world.

Our team, composed of specialists in the field of water technology, mechanical engineering and automation, is working to offer the customer the most suitable WWTP technology to meet his needs. We offer our clients complete solutions including technological and technical design, design and engineering activities, consultations, warranty and post-warranty service, analyzes, tests, and operator training.



Wastewater treatment plant Panagyurishte, Bulgaria

1. Pidrop, Bulgaria, 2. Skawina, Poland  
 3. Babice, Czech Republic,  
 4. Strzyżów, Poland



## Why to want our wastewater treatment plant?

- when designing a WWTP we approach the needs and wishes of a particular customer individually
- offer of many types of sewage treatment plants for sewage water treatment from towns and villages, but also from industrial plants
- our wastewater treatment plants are based on our own production tanks, thanks to which we guarantee long-term construction lifetime and rapid construction
- small and medium municipal WWTPs are designed in the arrangement of concentric circular tanks, which reduces the WWTP's demands on the size of the built-up area, but also savings in the construction of pipeline routes
- sludge management of biological WWTPs can be individually designed according to local conditions such as aerobic sludge stabilization with air, sludge stabilization with pure oxygen with hygienic security of produced sludge or in case of large WWTPs as anaerobic sludge stabilization with biogas production
- WWTPs are equipped with a system of measurement and regulation, which allows almost full automation of WWTP operation, enables remote monitoring of the WWTP operation status, or tracing operating parameters of individual machines and equipment in the operating history for their easy maintenance and repairs
- WWTP automation enables significant energy and other operational savings

# Biogas stations

We offer biogas plants (BGS) based on the principle of wet fermentation. Our BGS uses a single- or two-stage continuous or continuous mesophilic or thermophilic anaerobic fermentation system. We have solutions for agricultural, waste biogas plants and sewage sludge treatment plants.

## Why to buy our biogas plant?

- we offer optimum technological solutions for specific feed stocks
- we do not have a standardized BGS series
- we are manufacturers of steel tanks and fermenters
- we cooperate with world producers of technology and equipment for BGS
- we operate BGS worldwide
- for utilizing excess heat energy from cogeneration units (heat from flue gas and cooling), we have a solution in the form of technology using an organic Rankine cycle that converts thermal energy into electric energy.
- we provide technology for biogas purification to bio methane
- we provide services in the field of gas equipment revisions
- we provide advice on technology and operation of BGS



Biogas plant Pustějov, Czech Republic





## **BGS Piaszczyzna**

The Piaszczyzna biogas plant uses our many years of experience in the construction and operation of these technological units, which have been combined in the unique technology of industrial BGS. Two-diaphragm gas fermenters were selected to guarantee a sufficiently large accumulation of biogas. The station is installed as part of the distillery technology and forms a closed functional unit with it. All waste distillers of high acidity are processed in the station. A small amount of corn silage is used as conferment. The process is mesophilic, fermentation time about 30 days. The installed electrical capacity of the BGS is 2 MW, the thermal output is 2.5 MW. Thermal energy is consumed in the distillery's thermal management. Its own energy source and the method of processing distillery waste guarantee a reduction in the operating costs of the distillery and a significant improvement in the competitiveness of the market.



## **BGS Pustějov**

Biogas plant in Pustějov belongs to the group of agricultural stations. The fermenters are also fitted with two-diaphragm gas tanks, which accumulate the biogas produced. The fermentation process was chosen mesophilic; the fermentation time was about 30 days. Developed biogas is converted in cogeneration units into electrical and thermal energy. Installed electrical power BGS is 4 x 165 kW. Thermal energy is used to heat fermenters and adjacent areas of the cooperative.

# The most important benefits of a biogas plant

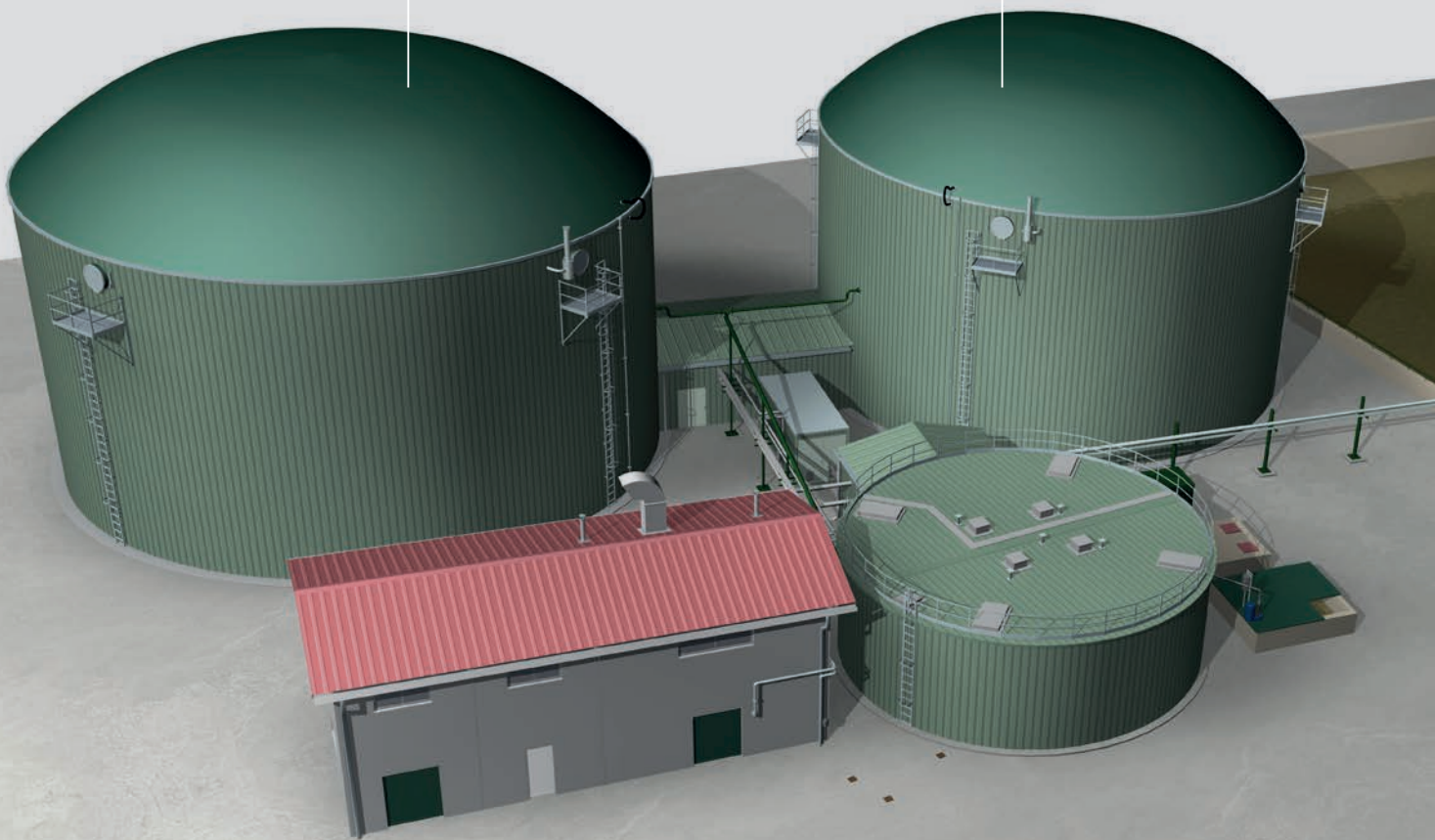
- a renewable energy source
- waste disposal
- energy recovery of organic waste
- stabilization of livestock manure and odour reduction
- ecological prod. of electric and thermal energy, eventually bio methane
- reducing the energy costs of agricultural and industrial enterprises
- reducing dependence on fossil fuels and reducing greenhouse gases
- increasing energy self-sufficiency

## Inputs

- agricultural waste
- animal by - products
- targeted crops
- BRO (biodegradable waste)
- sewage sludge

## Outputs

- electrical energy
- thermal energy
- bio methane
- stabilized material (digested anaerobically stabilized material - digestate, can be used as a quality organic fertilizer)



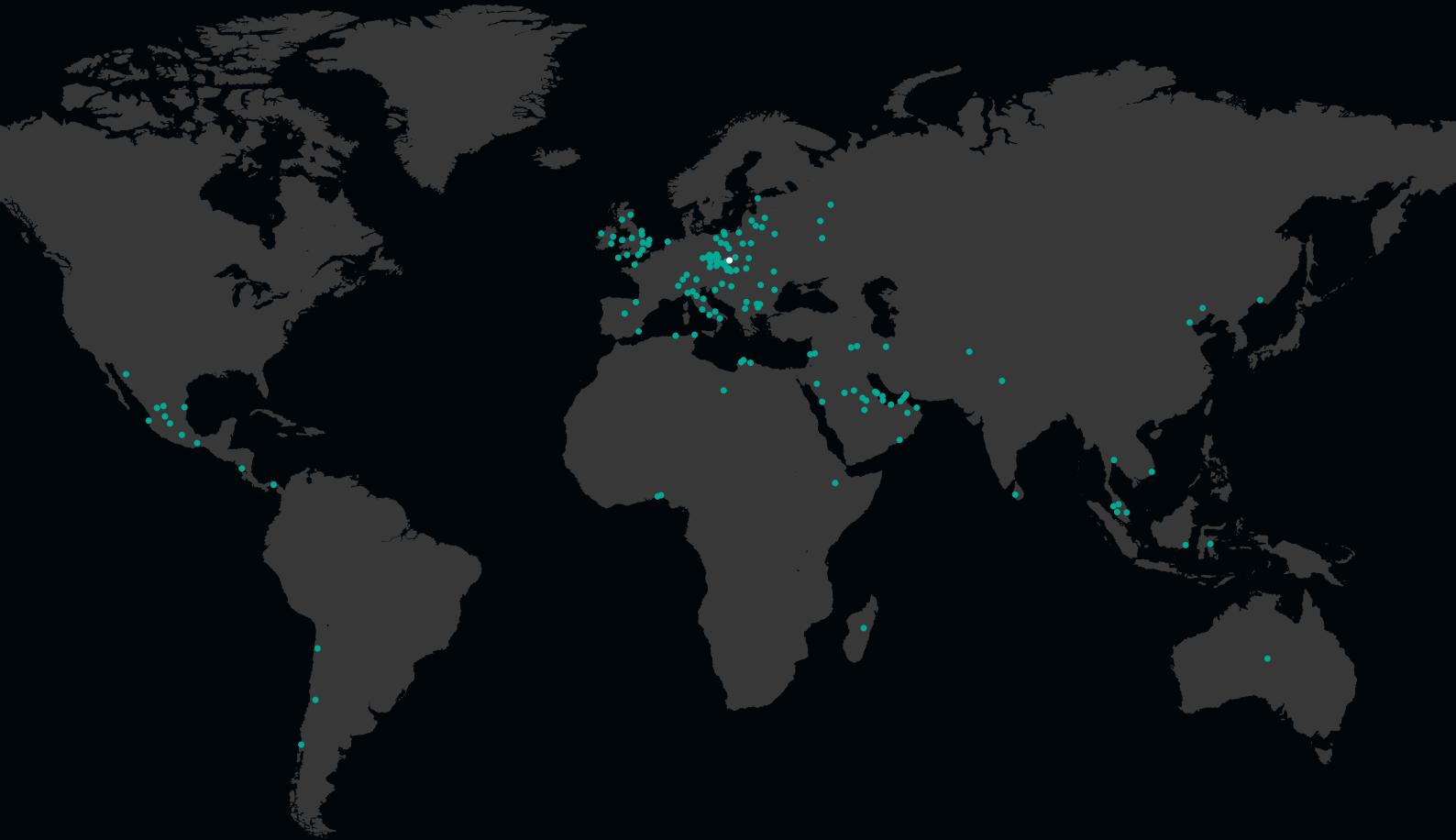
## Basic range of standard steel tanks without roofing

Number of rows	1	2	3	4	5	6	7	8	9	10	11	12
Height (m)	1,51	2,94	4,37	5,80	7,23	8,66	10,09	11,52	12,95	14,38	15,81	17,24

Tank diameter (m)	Number of sheets in a row	1	2	3	4	5	6	7	8	9	10	11	12
2,04	5	5	9	14	19	23	28	33	37	42	47	51	56
2,45	6	7	13	20	27	34	40	47	54	61	67	74	81
2,86	7	9	18	28	37	46	55	64	73	83	92	101	110
3,27	8	12	24	36	48	60	72	84	96	108	120	132	144
3,67	9	15	30	45	61	76	91	106	121	136	152	167	182
4,08	10	19	37	56	75	94	112	131	150	168	187	206	225
4,29	5	21	41	62	83	103	124	144	165	186	206	227	248
5,14	6	30	59	89	119	149	178	208	238	267	297	327	356
6,00	7	40	81	121	162	202	243	283	323	364	404	445	485
6,85	8	53	106	158	211	264	317	370	422	475	528	581	634
7,71	9	67	134	201	267	334	401	468	535	602	668	735	802
8,57	10	83	165	248	330	413	495	578	660	743	825	908	990
9,43	11	100	200	300	399	499	599	699	799	899	998	1098	1198
10,28	12	119	238	356	475	594	713	832	951	1069	1188	1307	1426
11,14	13	139	279	418	558	697	837	976	1116	1255	1395	1534	1684
12,00	14	162	323	485	647	809	970	1132	1294	1456	1617	1785	1953
12,86	15	186	371	557	743	928	1114	1300	1485	1671	1864	2057	2249
13,71	16	211	422	634	845	1056	1267	1479	1690	1901	2121	2340	2567
14,57	17	238	477	715	954	1192	1431	1669	1908	2155	2403	2651	2898
15,43	18	267	535	802	1069	1337	1604	1871	2139	2416	2694	2972	3249
16,29	19	298	596	894	1192	1489	1787	2085	2394	2704	3013	3323	3632
17,14	20	330	660	990	1320	1650	1980	2310	2653	2996	3339	3681	4024
18,00	21	364	728	1092	1456	1819	2183	2547	2925	3317	3681	4059	4451
18,86	22	399	799	1198	1597	1997	2396	2811	3226	3640	4055	4470	4885
19,71	23	437	873	1310	1746	2183	2619	3072	3526	3979	4432	4886	
20,57	24	475	951	1426	1901	2376	2852	3345	3839	4332	4826	5320	
21,43	25	516	1031	1547	2063	2576	3114	3650	4185	4721	5256		
22,29	26	558	1116	1673	2231	2789	3368	3948	4527	5106	5685		
23,14	27	602	1203	1805	2406	3008	3632	4257	4882	5506	6131		
24,00	28	647	1294	1941	2588	3235	3906	4578	5250	5922			
24,86	29	694	1388	2082	2776	3470	4190	4911	5632	6352			
25,71	30	743	1485	2228	2971	3713	4484	5284	6027	6798			
26,57	31	793	1586	2379	3172	3995	4819	5642	6466				
27,43	32	845	1690	2535	3380	4257	5135	6012	6890				
28,29	33	899	1797	2696	3594	4528	5461	6394	7327				
29,14	34	954	1908	2860	3816	4806	5797	6787					
30,00	35	1011	2022	3032	4043	5093	6143	7192					
30,86	36	1069	2139	3208	4278	5388	6499	7609					
31,72	37	1130	2259	3389	4519	5692	6865	8038					
32,57	38	1192	2383	3575	4812	6049	7287	8524					
33,43	39	1255	2510	3765	5069	6372	7675						
34,29	40	1320	2640	3961	5332	6703	8074						
35,14	41	1387	2774	4161	5602	7042	8483						
36,00	42	1456	2911	4367	5878	7390	8901						
36,86	43	1526	3051	4577	6162	7746	9330						
37,71	44	1597	3195	4792	6451	8110	9769						
38,57	45	1671	3342	5013	6748	8483	10218						
39,43	46	1746	3492	5238	7051	8864							
40,29	47	1823	3646	5468	7361	9254							
41,14	48	1901	3802	5703	7678	9652							
42,00	49	1981	3962	5944	8001	10135							

## We have been here since 1828.

We are wherever people need clean water, control energy, bridge valleys or exploit the wealth of the country. We help to create, build and produce. In 70 countries on all continents, we are a sign of unique knowledge, technology and dedicated professionals you can rely on for over 190 years. **#wearewitkowitz**



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