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materials for a better life

BrazeTec Products

Umicore Brazing Technology

Brazing Alloys & Brazing Fluxes
Brazing Pastes
Soft Solders & Soft Solder Fluxes

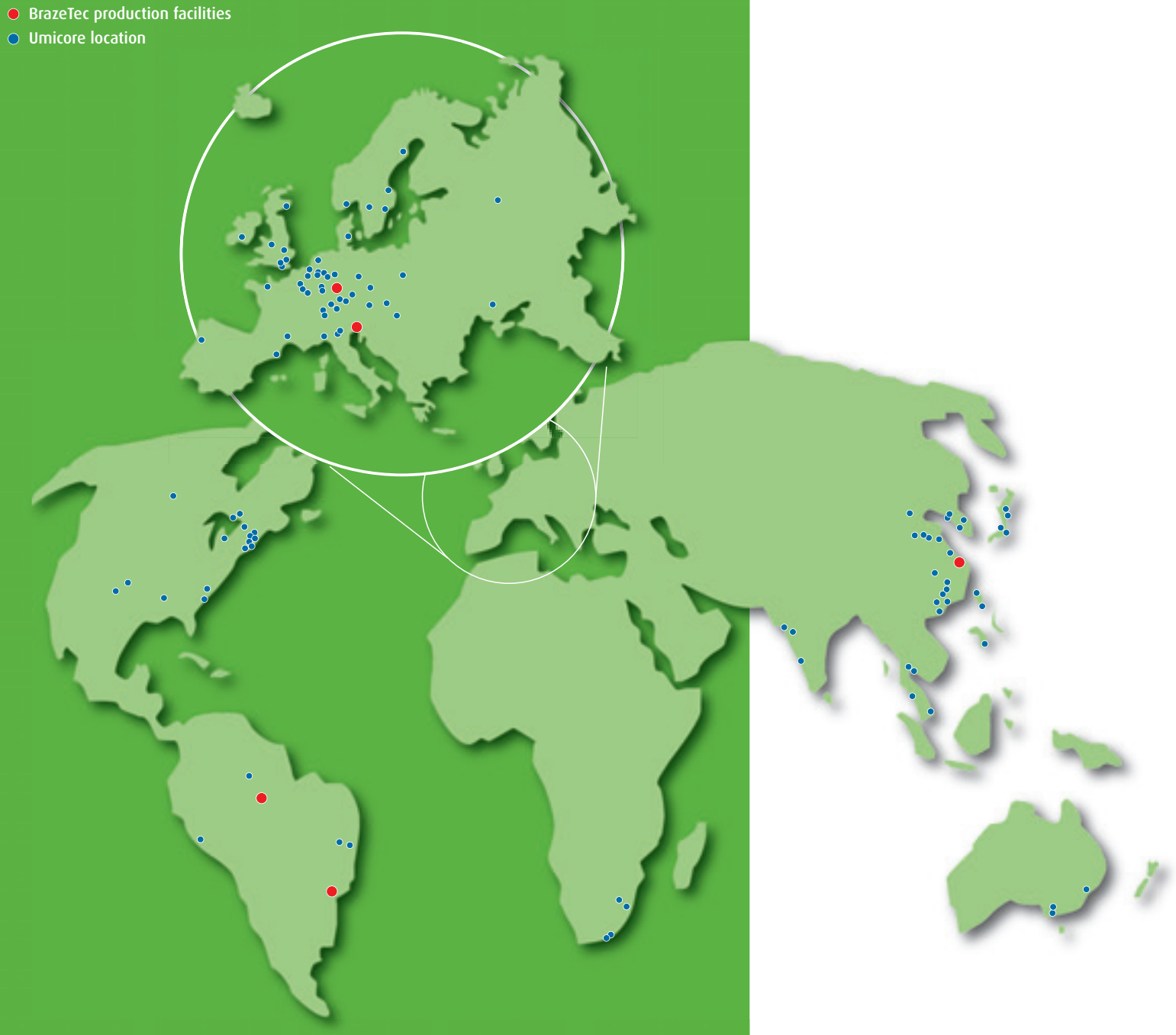
Brazing is BrazeTec

Brazing is BrazeTec

BrazeTec Brazing Alloys & Brazing Fluxes

BrazeTec Brazing Pastes

BrazeTec Soft Solders & Soft Soldering Fluxes



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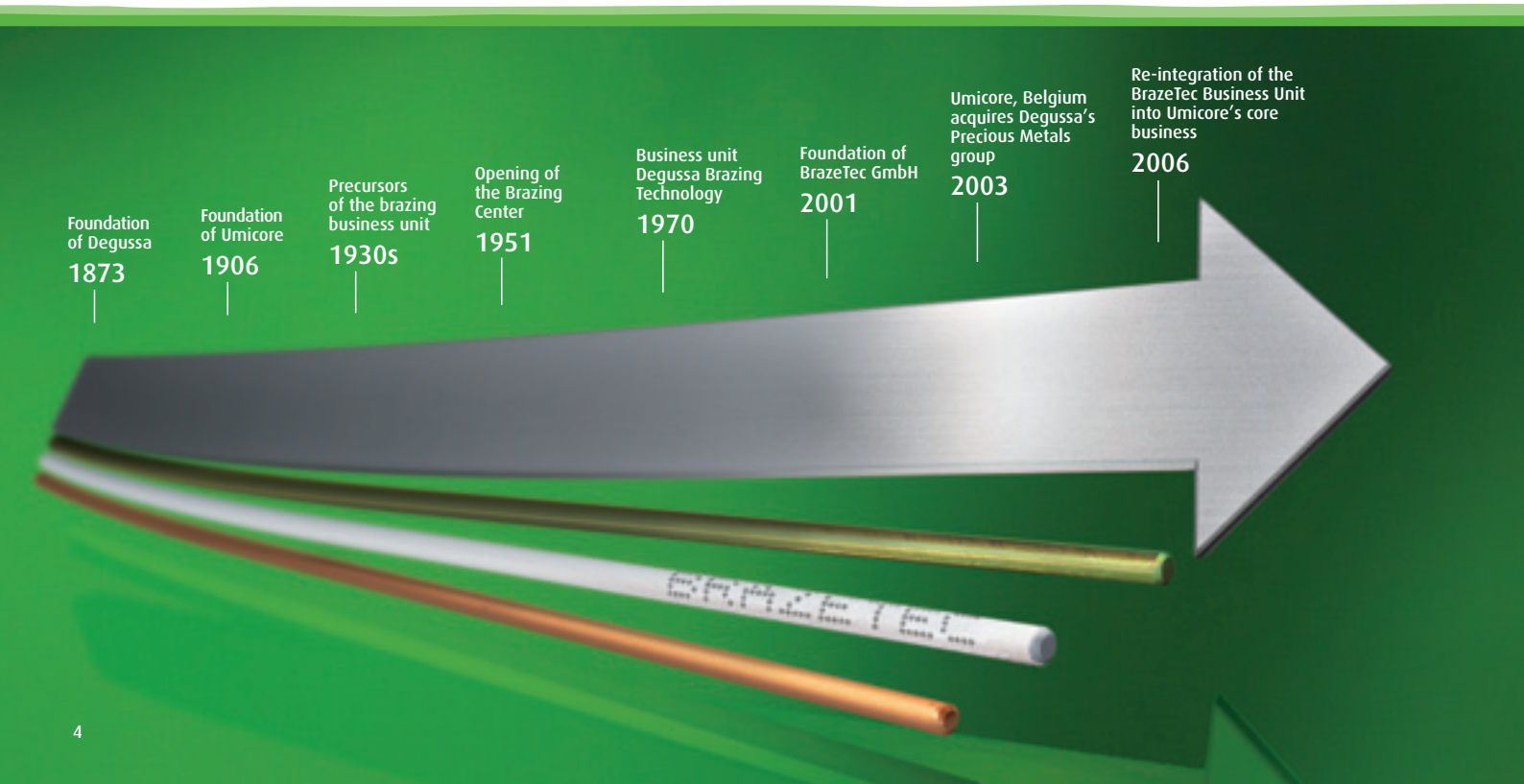
Brazing is BrazeTec

Convincing Through Performance – for generations – BrazeTec

In line with our claim "Brazing is BrazeTec", we offer solutions, which set standards, products, and technologies that set the trend and a service that always puts the needs of our customer first.



German Institute for Quality Assurance and Labeling

German Technical and Scientific Association for Gas and Water

TQM & Responsible Care

Certified to DIN EN ISO 9001:2008

Certified to DIN EN ISO 9001:2008

Certified to DIN EN ISO 50001:2011

Umicore – BrazeTec
Your Partner in Brazing Technology

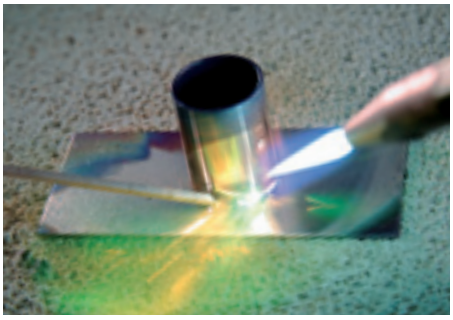
BrazeTec is a world leader in the manufacture and supply of high quality brazing materials, brazing paste and flux. Originally part of Degussa, today BrazeTec is part of the multinational materials technology group Umicore, which focuses on application areas where it is foremost for its know how in materials science, chemistry and metallurgy. This union offers BrazeTec an optimum environment for stability and innovation.

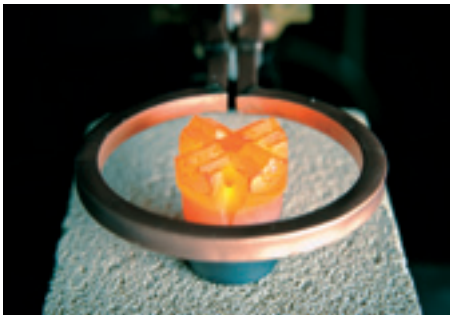
With production sites in Europe, America and Asia, as well as a worldwide sales and logistics network, we are here for you when it comes to joining metals permanently and reliably. Our customer service naturally meets all requirements on export documents, REACH requirements and safety data sheets in local languages for customers in all parts of the world. Through our integration into the Umicore Group, we offer you the additional facilities of precious metal recycling, precious metal management and other Umicore services, to meet your requirements.

A stable and unprecedented product quality is the foundation of our long-term and successful partnerships with customers. Continuous improvement processes ensure that our employees and products meet the growing demands and thanks to our team of experts at the Brazing Center we can, together with you, develop customized solutions, optimize your production processes and adapt our extensive range of products to suit your particular needs.

Brazing is BrazeTec

... since 1930


Flame brazing


Induction brazing


Viscosity measurement

The Knowledge Center and the Basis of Every Innovation – our **Brazing Center**

Our Brazing Center has offered technical services to our customers around the world for over 60 years.

Service & Know-how

Brazing Center Service

- Application technology consultation
- Brazing trials on production parts
- Brazing seminars and training courses
- Partnership project work

Brazing Center Brazing Equipment

- Oxyacetylene burner
- Medium and high frequency induction facility
- Inert gas furnace
- Muffle furnace
- Vacuum furnace

Brazing Center Analysis

- Metallographic analysis
- Optical and electron microscopy
- Thermic analysis
- Elementary analysis
- Determination of mechanical parameters (hardness, strength)

With our Brazing Center in Hanau, Germany, we have for over 60 years maintained a unique and first-class center for technical advice and project work with our customers, and for the development of new, superior metal and chemical products, which meet the demanding requirements of our customers in connection technology.

Application Technology Consultation

Our experienced personnel in the Brazing Center will assist you with regard to the optimum product selection for your brazing process, discuss with you the correct design of your components for brazing and make recommendations for suitable brazing techniques, including the required parameters.

Brazing Trials

Thanks to our wide range of brazing equipment, we are able to carry out brazing trials directly on prototype and production parts. Using state of the art analytical methods, we can assess the quality of the brazed joints and subsequently evaluate the trials. The process parameters determined in this way enable the specification of the production requirements for our customers.

Brazing Seminars and Training Courses

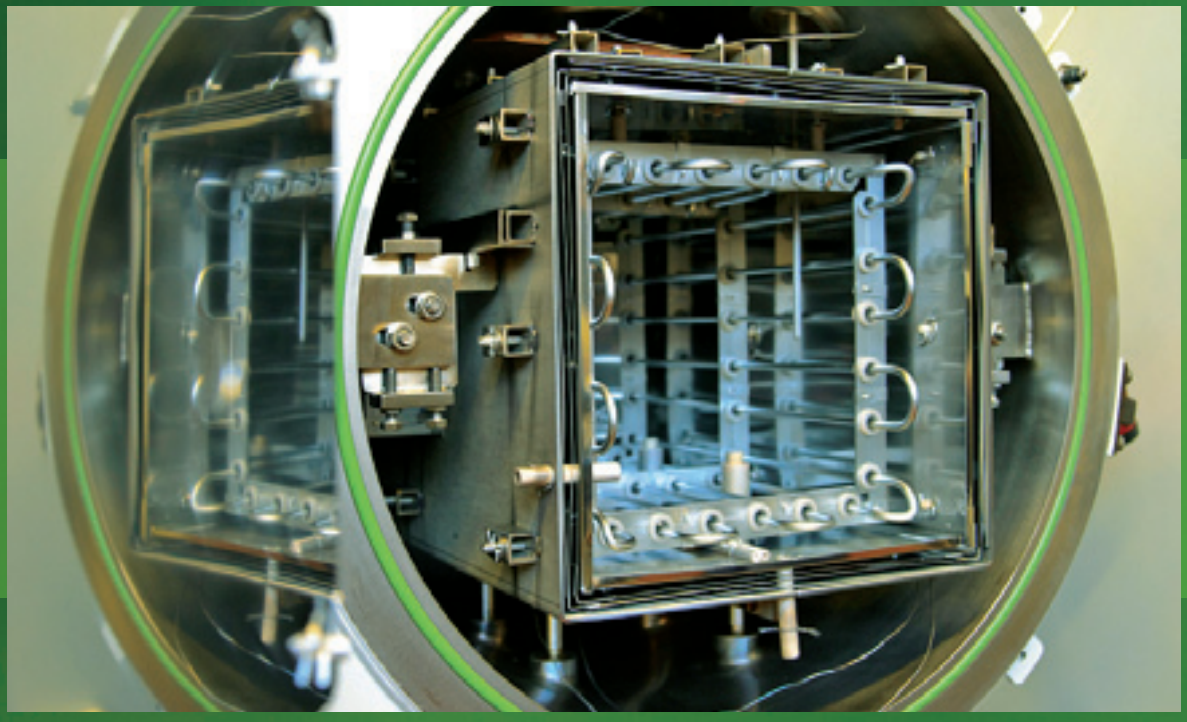
With the aid of conferences, meetings and seminars of various organisers, our personnel at the Brazing Center discuss, expand, and share their knowledge. Specifically it is possible to support our customers by means of brazing seminars and training courses conducted on their own premises, as well as personalised events locally.

Web seminars on current brazing topics also offer our customers the opportunity to acquire technical brazing knowledge online.

Partnership Project Work

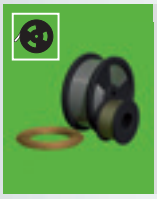
In partnership with our customers, we address complex and long-term brazing topics in the form of project work. These include the optimisation of existing processes or the development of new production and brazing processes to meet individual adaptation of our products as well as joint research and development work.

Vacuum furnace



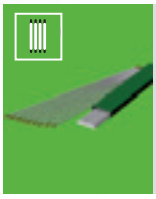
BrazeTec Products

The most widely used forms are:



Wire

Ø: 1.5 / 2.0 / 3.0 mm
in coils or on spools

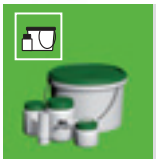


Flux coated brazing rods

Core-Ø: 1.5 and 2.0 mm
Length: 500 mm
Flux coating:
standard, thin or extra-thin

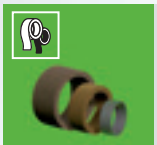
Rods

Ø: 1.5 / 2.0 / 3.0 mm
Length: 500 mm



Flux

Quantity:
0.1/0.5/1/10/40 kg



Strip

Thickness:
0.1 / 0.2 / 0.25 / 0.3 / 0.4 mm
Width:
1.5 to 70 mm

Brazing Paste

Quantity: 1/3/5/10/25 kg
Custom cartridges available on demand

Sandwich Alloy/Trifoil

Thickness:
0.25 / 0.3 / 0.4 mm

Width:
1.5 to 70 mm

Preforms

Wire:
Rings, segments, multiform parts
Strip / Sandwich Alloy:
Segments, stamped and multi-form parts, platelets, washers, discs, squares, etc.

Please note these are our standard forms – many other forms are available upon request.

Information about our products and equipment as well as our systems and procedures is based on comprehensive research and application technological experience. We communicate these results, but take no liability for respective single contracts that are exceeding thereof. We reserve the right to make technical changes in the process of product development in spoken and written terms to the best of our knowledge. Furthermore, our application technology services are available at your convenience for more detailed consultation such as the involvement in solving manufacturing and application technology problems. This does not however, release the user from their own responsibility for checking the input and recommendations we give for their own use prior to using that input or recommendation. This is especially applicable for foreign deliveries. This also applies to the trade mark rights of third parties, for applications and procedures that are not specifically given by us. In the event of damage or loss our liability is limited to indemnification of the same admeasurement as is foreseen in our general terms of sales and delivery in reference to deficiencies in quality.

Brazing Alloys & Brazing Fluxes

BrazeTec Silver Brazing Alloys, Cadmium Free A

Name	Composition by Weight-%				Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp. min.	Density	ISO 17672	Tensile Strength acc. to DIN EN 12797 min.	Available Forms			
	Ag	Cu	Zn	Misc.	in °C	in °C	in °C	in g/cm³		in MPa on S 235				
BrazeTec 5662	56	19	17	5 Sn/3 Ga	605 – 630	–	630	9.3	–	150	•	•	–	–
BrazeTec 5600	56	22	17	5 Sn	630 – 655	620 – 655	655	9.4	Ag 156	150	•	•	•	•
BrazeTec 5507	55	21	22	2 Sn	650 – 670	630 – 660	670	9.3	Ag 155	150	•	•	•	•
BrazeTec 4576 [1]	45	27	25.5	2.5 Sn	645 – 695	640 – 680	695	9.1	Ag 145	150	•	•	•	•
BrazeTec 4076	40	30	28	2 Sn	665 – 725	650 – 710	725	9.0	Ag 140	150	•	•	•	•
BrazeTec 3476 [1]	34	36	27.5	2.5 Sn	655 – 745	630 – 730	745	8.9	Ag 134	150	•	•	•	•
BrazeTec 3076	30	36	32	2 Sn	675 – 760	665 – 755	760	8.8	Ag 130	150	•	•	–	•
BrazeTec 2576	25	40	33	2 Sn	680 – 775	680 – 760	775	8.8	Ag 125	150	•	•	–	•
BrazeTec 4404 [1]	44	30	26	–	675 – 735	675 – 735	735	9.1	Ag 244	150	•	•	•	•
BrazeTec 3075	30	38	32	–	700 – 775	680 – 765	775	8.8	Ag 230	150	•	•	•	•
BrazeTec 2500	25	40	35	–	715 – 790	700 – 790	790	8.7	Ag 225	150	•	•	–	•
BrazeTec 2009	20	44	35.8	0.15 Si	730 – 810	–	810	8.6	–	150	•	•	–	•

[1] German Institute for Quality Assurance and Labeling — German Technical and Scientific Association for Gas and Water

Most alloys can be supplied with 0.15% Si

The silver brazing alloys shown on this page are generally capable of being used for operating temperatures from –200 °C to +200 °C. They can be used with any type of steel, copper and copper alloy, also nickel and nickel alloy.

BrazeTec CoMet – Brazing Rods, Cadmium Free & Flux Coated B

Name	Melting Range acc. to DSC in °C	Brazing Temperature min. in °C	Available Forms
BrazeTec CoMet 5600U	630 – 655	655	•
BrazeTec CoMet 4576U	645 – 695	695	•
BrazeTec CoMet 4404U	675 – 735	735	•
BrazeTec CoMet 4076U	665 – 725	725	•
BrazeTec CoMet 3476U	655 – 745	745	•
BrazeTec CoMet 3076U	675 – 760	760	•
BrazeTec CoMet 2009U	730 – 810	810	•

Most alloys can be supplied with 0.15% Si

BrazeTec offers the following cadmium free brazing alloys from its comprehensive range of products under the name of CoMet (coated metal) as flux coated rods as well. The flux is equivalent to the type FH 10 in accordance with DIN EN 1045 and is boraric acid free. The respective instructions for the use of cadmium free brazing alloys are effective for its application. The silver content by weight of the coated brazing rod is lower than the silver content of a bare brazing rod because of the flux coating. The content of the bare brazing rod of course meets the composition found in cadmium free brazing alloys.

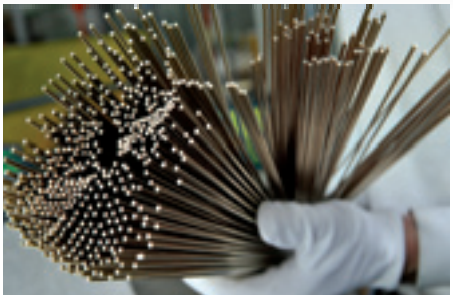
C BrazeTec Brazing Alloys for Copper and Copper Based Materials

Name	Composition by Weight-%				Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp. min.	Density	ISO 17672	Tensile Strength acc. to DIN EN 12797 min.	Available Forms			
	Ag	Cu	P	Sn	in °C	in °C	in °C	in g/cm³		in MPa on Cu				
BrazeTec S 18	18	75	7	–	645	645	650	8.3	CuP 286	100	•	•	–	•
BrazeTec S 15	15	80	5	–	645 – 800	645 – 800	700	8.3	CuP 284	100	•	•	•	•
BrazeTec S 5	5	89	6	–	645 – 835	645 – 815	710	8.2	CuP 281	100	•	•	•	•
BrazeTec S 2 [1]	2	91.7	6.3	–	645 – 845	645 – 825	740	8.1	CuP 279	100	•	•	•	•
BrazeTec S 94 [1]	–	93.8	6.2	–	710 – 860	710 – 890	760	8.1	CuP 179	100	•	•	–	•
BrazeTec S 93	–	93	7	–	710 – 820	710 – 820	730	8.1	CuP 180	100	•	•	–	•
BrazeTec S 92	–	92.2	7.8	–	710 – 780	710 – 770	720	8.0	CuP 182	100	•	•	–	–
BrazeTec S 86	–	86.2	6.8	7	640 – 720	650 – 700	700	8.0	CuP 386	100	•	–	–	–

[1] German Institute for Quality Assurance and Labeling German Technical and Scientific Association for Gas and Water Most alloys can be supplied with 0.15% Si

These brazing alloys can be used at operating temperatures from –70 °C to +150 °C. The phosphorous containing brazing alloys on this page were especially developed for the joining of copper with copper or of copper alloys (brass, bronze, red brass).

The use of an additional flux is not necessary when brazing copper to copper due to its phosphorous-content but should be used with copper alloys. These brazing alloys should not be used in the brazing of materials that contain sulphur. These brazing alloys are not suitable for steels (Fe) and nickel alloys due to brittle-phase-generation. BrazeTec S 2 and BrazeTec S 94 are approved for use according to DVGW regulations.



D BrazeTec Brazing Alloys for Special Applications

Name	Composition by Weight-%					Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp. min.	Density	ISO 17672	Notes on Application	Available Forms			
Silver Brazing Alloys	Ag	Cu	Sn	Si	Zn	in °C	in °C	in °C	in g/cm³						
BrazeTec 7200	72	28	–	–	–	780	780	780	10.0	Ag 272	metallized ceramic	•	•	•	•
BrazeTec 7291	72	–	–	–	28	710 – 730	–	730	8.43	–	any steel	•	•	•	•
BrazeTec 6009	60	30	10	–	–	600 – 720	600 – 730	720	9.8	Ag 160	stainless steel	•	•	•	•
Brass Brazing Alloys	Cu	Zn	Ni	Si	Mn	in °C	in °C	in °C	in g/cm³						
BrazeTec 60/40	60	39.55	–	0.3	0.15	870 – 900	870 – 900	900	8.4	Cu 670	galvanized steel pipes	•	•	•	•
BrazeTec 48/10	48	41.8	10	0.2	–	890 – 920	890 – 920	920	8.4	Cu 773	steel pipe frames	•	•	–	•

BraceTec 7200 and BrazeTec 6009 brazing alloys can be brazed in air with flux as well as in a protective atmosphere furnace without flux. BrazeTec 6009 is used with flux

BrazeTec special h for the brazing of stainless steel. The brazing processes in a vacuum should not exceed 900 °C for both brazing alloys to avoid the evaporation of silver.

The furnace brazing temperature is governed in accordance with the base material.

BrazeTec Sandwich Alloys for the Brazing of Tungsten Carbides E

Name	Composition[1] by Weight-%						Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp. min.	Tensile Strength[2] min.	Density	Notes on Application	Available Forms	
	Ag	Cu	Zn	Mn	Ni	In	in °C	in °C	in °C	in MPa on K10	in g/cm³			
BrazeTec 49/Cu	49	27.5	20.5	2.5	0.5	–	670 – 720	–	710	150	9.0	intermediate copper layer	•	•
BrazeTec 49/Cu^{plus}	49	27.5	20.5	2.5	0.5	–	670 – 720	–	710	180	9.0	modified inter-mediate layer	•	•
BrazeTec 49/NiN	49	27.5	20.5	2.5	0.5	–	670 – 720	–	710	150	9.0	nickel net sandwich brazing alloy	•	•
BrazeTec 49/CuNiFe	49	27.5	20.5	2.5	0.5	–	670 – 690	–	690	150	9.0	intermediate CuNiFe layer	•	•
BrazeTec 64/Cu	64	26	–	2	2	6	730 – 780	–	770	150	9.6	suitable for TiN-coating, intermediate copper layer	•	•
BrazeTec Cu/NiN	–	100	–	–	–	–	1,085	1,085	1,100	200	8.9	nickel net sandwich brazing alloy	•	•

[1] The data on the composition of sandwich brazing alloys refer only to the brazing layer. [2] Measured according to BrazeTec standard, compound 1.2210 & K10

BrazeTec has developed a sandwich alloy brazing system that can compensate for internal stresses caused by the different thermal expansion coefficients during cooling.

We recommend the sandwich brazing alloy BrazeTec 49/Cu^{plus} for applications that require an especially high degree of shear strength. The strength to be achieved is dependent upon the strength of the base material.

BrazeTec Brazing Alloys for the Brazing of Tungsten Carbides F

Name	Composition by Weight-%						Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp. min.	Tensile Strength[1] min.	Density	ISO 17672	Notes on Application	Available Forms			
	Ag	Cu	Zn	Mn	Ni	Misc..	in °C	in °C	in °C	in MPa on K10	in g/cm³						
BrazeTec 6488	64	26	–	2	2	6 In	730 – 780	–	770	150	9.6	–	TiN-coatable	•	•	•	•
BrazeTec 5081	50	20	28	–	2	–	670 – 730	660 – 715	700	230	9.2	Ag 450	–	•	•	•	•
BrazeTec 4900	49	16	23	7.5	4.5	–	680 – 705	680 – 705	690	250	8.9	Ag 449	–	•	•	•	•
BrazeTec 4900 A	49	27.5	20.5	2.5	0.5	–	670 – 720	–	710	240	8.9	–	–	•	•	•	•
BrazeTec 2700	27	38	20	9.5	5.5	–	690 – 850	680 – 850	800	250	8.7	Ag 427	–	•	•	•	•
BrazeTec 21/80	–	86	–	12	2	–	970 – 1,005	–	990	200	8.8	–	Zn-free alloys suitable for furnace brazing	•	•	•	•
BrazeTec 21/68	–	87	–	10	–	3 Co	980 – 1,020	–	1,020	200	8.8	–		•	•	•	•

[1] Measured according to BrazeTec standard, compound 1.2210 & K10

The mentioned brazing alloys are suitable for the brazing of tungsten carbides and hard to wet materials such as wolfram, molybdenum tantalum, and chrome. The strength achieved is dependent upon the strength of the base material.

G BrazeTec Active Brazing Alloys for the Brazing of Ceramic Materials

Name	Composition by Weight-%				Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp. min.	Density	Notes on Application	Available Forms			
	Ag	Cu	In	Ti	in °C	in °C	in °C	in g/cm³					
BrazeTec CB 2	96	–	–	4	970	–	1,000	10.3	ceramic, ceramic/metal-connections, graphite, diamond, sapphire, ruby	•	•	•	•
BrazeTec CB 4	70.5	26.5	–	3	780 – 820	–	850	9.9		•	•	•	•
BrazeTec CB 6	98.4	–	1	0.6	950 – 960	–	1,000	10.3	silicon nitride	•	•	•	•

A minimal brazing temperature of 850 °C is necessary in order to achieve a bond with ceramics using BrazeTec Active Brazing Alloys. Higher brazing temperatures can improve the wetting behaviour. Pure Argon (4.8) or vacuum (<10^{-3}mbar) is used as the protective brazing atmosphere. The temperature for a vacuum brazing should range between 900 °C to 1,000 °C to avoid the evaporation of silver.

H BrazeTec Active Brazing Paste

Name	Composition by Weight-%			Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp. min.	Notes on Application	Available Forms	
	Ag	Cu	Ti	in °C	in °C	in °C			
BrazeTec CB 10	64.8	25.2	10	780 – 805	–	850	ceramic, ceramic/metal-connections, graphite, sapphire, ruby	•	
BrazeTec CB 11	90	–	10	970	–	1,000		•	

BrazeTec active brazing pastes contain a metal content of approximately 85% and are suitable for dispenser application and screen printing. Materials with different Ti-contents are also available on request.

BrazeTec Brazing Fluxes I

Name	DIN EN 1045	Effective Temperature Range [1] in °C	Available Forms: Paste	Available Forms: Dispensable Paste	Available Forms: Powder	Notes on Application
BrazeTec h [2]	FH 10	550 – 970	•	–	•	universal flux for heavy metals
BrazeTec h 28	FH 10	580 – 940	•	–	–	flux for automated brazing
BrazeTec h 80	FH 10	550 – 850	•	–	–	flux for brazing of larger areas
BrazeTec h 86	FH 10	550 – 850	•	–	–	flux for brazing of larger areas
BrazeTec h 280	FH 10	520 – 850	•	•	–	flux for automated brazing
BrazeTec r 1	FH 10	520 – 630	•	–	–	flux for non-ferrous metals for special tools
BrazeTec d 21	FH 10	520 – 760	–	–	•	powder-type flux for steel and non-ferrous metals, powder clings to hot rods
BrazeTec d	FH 10	550 – 850	–	–	•	flux for any steel type, non-ferrous metals for special purposes
BrazeTec I	FH 11	490 – 730	•	–	–	flux for heavy metals with up to 10% aluminium
BrazeTec spezial h	FH 12	520 – 1,030	•	–	•	flux for stainless and scale resistant steels, carbides, special materials
BrazeTec h 90	FH 12	520 – 850	–	–	•	flux for special carbides
BrazeTec h 285	FH 12	520 – 910	•	•	–	flux for automated brazing, also suitable for carbide brazing
BrazeTec h 900	FH 12	520 – 820	•	•	–	flux for machine brazing for special carbides
BrazeTec s [3]	FH 20	650 – 1,050	•	–	•	flux, also for high-alloy-steel, Ni-alloys, carbides
BrazeTec spezial s [3]	FH 20	650 – 1,050	•	–	–	flux for non-rusting steels, super alloys, carbides, special metals

[1] On S 235 in oven and air. Suitable brazing filler metal must wet and flux shouldn't be burnt completely.

[2] German Institute for Quality Assurance and Labeling — German Technical and Scientific Association for Gas and Water

[3] Flux residues are not corrosive

The choice of flux is made in accordance with the working temperature of the brazing alloy and the base materials. The working temperature or melting range of the brazing alloy should be within the effective temperature range of the flux. The effective temperature ranges specified are derived from our extensive research. Additional fluxes for special applications are available upon request.

BrazeTec Anti Flux J

Name	Delivery Form	Brazing Procedure	Brazing Atmosphere
BrazeTec Antiflux ASV	paste	soft soldering, brazing and high temperature brazing	air, protective gas, vacuum

BrazeTec Anti-Flux ASV prevents the wetting of the brazing alloy on surfaces that should not be wet and thereby permits selective and precise brazing.

Overview of Standards

Name	ISO 17672	ISO 3677	DIN EN 1044	AWS A5.8	DIN 8513	JIS	GB/T
BrazeTec Brazing Alloys, Cadmium Free, Table A							**GB/T 10046**
BrazeTec 5662	–	B-Ag56CuZnSnGa 610/630	–	–	–	–	–
BrazeTec 5600	Ag 156	B-Ag56CuZnSn-620/655	AG 102	BAg-7	L-Ag55Sn	BAg-7	BAg56CuZnSn
BrazeTec 5507	Ag 155	B-Ag55ZnCuSn-630/660	AG 103	–	L-Ag55Sn	–	BAg55CuZnSn
BrazeTec 4576	Ag 145	B-Ag45CuZnSn-640/680	AG 104	BAg-36	L-Ag45Sn	BAg-7A	BAg45CuZnSn
BrazeTec 4076	Ag 140	B-Ag40CuZnSn-650/710	AG 105	BAg-28	L-Ag40Sn	BAg-28	BAg40CuZnSn
BrazeTec 3476	Ag 134	B-Cu36AgZnSn-630/730	AG 106	–	L-Ag34Sn	BAg-7B	BAg34CuZnSn
BrazeTec 3076	Ag 130	B-Cu36ZnAgSn-665/755	AG 107	–	L-Ag30Sn	–	BAg30CuZnSn
BrazeTec 2576	Ag 125	B-Cu40ZnAgSn-680/760	AG 108	–	L-Ag25Sn	–	BAg25CuZnSn
BrazeTec 4404	Ag 244	B-Ag44CuZn-675/735	AG 203	–	–	–	BAg44CuZn
BrazeTec 3075	Ag 230	B-Cu38ZnAg-680/765	AG 204	BAg-20	–	BAg-20	BAg30CuZn
BrazeTec 2500	Ag 225	B-Cu40ZnAg-700/790	AG 205	–	–	BAg-20A	BAg25CuZn
BrazeTec 2009	–	B-Cu44ZnAg(Si)-690/810	AG 206	–	L-Ag20	–	BAg20CuZn (Si)
BrazeTec Brazing Alloys for Copper and Copper Based Materials, Table C							**GB/T 6418**
BrazeTec Silfos 18	CuP286	B-Cu75AgP-645	CP 101	–	–	BCuP-8	BCu75AgP
BrazeTec Silfos 15	CuP 284	B-Cu80AgP-645/800	CP 102	BCuP-5	L-Ag15P	BCuP-5	BCu80AgP
BrazeTec Silfos 5	CuP 281a	B-Cu89PAg-645/815	CP 104	BCuP-3*	L-Ag5P	–	BCu89AgP*
BrazeTec Silfos 2*	CuP 279	B-Cu92PAg-645/825	CP 105	–	L-Ag2P	–	BCu92AgP
BrazeTec Silfos 94*	CuP 179	B-Cu94P-710/890	CP 203	–	L-CuP6	–	BCu94P
BrazeTec Silfos 93	CuP 180	B-Cu93P-710/820	CP 202	–	L-CuP7	BCuP-2	BCu93P-B
BrazeTec Silfos 92*	CuP 182	B-Cu92P-710/770	CP 201	–	L-CuP8	–	BCu92P
BrazeTec Silfos 90	–	–	–	–	–	–	–
BrazeTec Silfos 86	CuP 386	B-Cu86SnP-650/700	CP 302	–	–	–	BCu86SnP

Name	ISO 17672	ISO 3677	DIN EN 1044	AWS A5.8	DIN 8513	JIS	GB/T
BrazeTec Silver Brazing Alloys for Special Applications, Table D							**GB/T 10046**
BrazeTec 7200	Ag 272	B-Ag72Cu-780	AG 401	BAg-8	L-Ag72	BAg-8	BAg72Cu
BrazeTec 6009	Ag 160	B-Ag60CuSn-600/700	AG 402	BAg-18	-	BAg-18	BAg60CuSn
BrazeTec Brass Brazing Alloys for Special Applications, Table D							**GB/T 6418**
BrazeTec 60/40	Cu 670	B-Cu60Zn(Si)(Mn)-870/900	CU 303	–	L-CuZn40	–	BCu60Zn(Si)(Mn)
BrazeTec 48/10	Cu 773	B-Cu48ZnNi(Si)-890/920	CU 305	RBCuZn-D	L-CuNi10Zn42	BCu-8	BCu48ZnNi(Si)
BrazeTec Active Brazing Alloys for the Brazing of Ceramic Materials, Table G							**GB/T 10046 oder GB/T 6418**
BrazeTec 6488	–	B-Ag64CuInNiMn-730/780	–	–	–	–	–
BrazeTec 5081	Ag 450	B-Ag50CuZnNi-660/705	–	BAg-24	–	BAg-24	BAg49ZnCuNi
BrazeTec 4900	Ag 449	B-Ag49ZnCuMnNi-680/705	AG 502	BAg-22	L-Ag49	BAg-22	BAg49ZnCuMnNi
BrazeTec 4900 A	–	B-Ag49ZnCuMnNi-670/690	–	–	–	–	–
BrazeTec 2700	Ag 427	B-Cu38AgZnMnNi-680/830	AG 503	–	L-Ag27	–	BAg27CuZnMnNi
BrazeTec 21/80	Cu 595	B-Cu84MnNi-965/1000	–	–	–	–	BCu84MnNi
BrazeTec 21/68	–	B-Cu87MnCo 980/1030	–	–	–	–	–

Name	ISO 17672	ISO 3677	DIN EN 1044	AWS A5.8	DIN 8513	JIS	GB/T
BrazeTec Copper Based Pastes, Table K							**GB/T 6418**
BrazeTec D 801	Cu 110	B-Cu100-1085	CU 101	BCu-1b	L-Cu	BCu-1	BCu100-B
BrazeTec D 807	CuP 284	B-Cu80AgP-645/800	CP 102	BCuP-5	L-Ag15P	BCuP-5	BCu80AgP
BrazeTec D 810	CuP 182	B-Cu92P-710/770	CP 201	–	L-CuP8	–	BCu92P
BrazeTec Nickel Based Pastes, Table L							
BrazeTec 897	Ni 710	B-Ni76CrP-890	NI 107	BNi-7	L-Ni7	BNi-7	–
BrazeTec 1002	Ni 620	B-Ni82CrSiBFe-970/1000	NI 102	BNi-2	L-Ni2	BNi-2	–
BrazeTec 1135	Ni 650	B-Ni71CrSi-1080/1135	NI 105	BNi-5	L-Ni5	BNi-5	–

Brazing Pastes

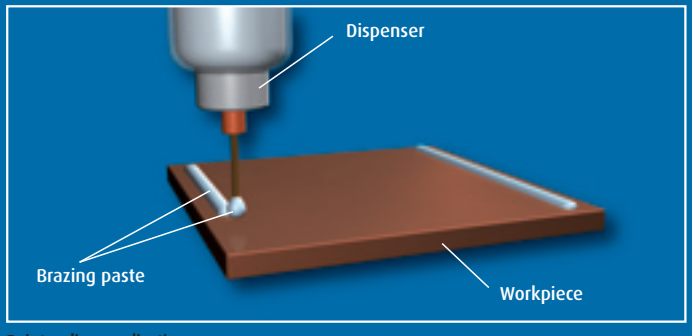
BrazeTec Brazing Paste Systems

For innovative connection possibilities, BrazeTec also offers brazing materials as pastes, in addition to the solid forms. A brazing paste is a homogenous, ready to use, mixture of metallic brazing powder, flux and solvents. Polymers and other additives prevent the settlement of the brazing powder and determine the application and flow characteristics of the brazing paste. The following processes are available for the application according to the task in hand.

BrazeTec offers tailor made brazing paste systems for these application processes. For this purpose, a wide range of binder systems and brazing paste formulations have been developed and can be further adapted for specific customer processes. Brazing pastes are particularly suitable for automated brazing processes, because they can be easily integrated into a production process. They enable the optimum use of materials for both small and large series production.

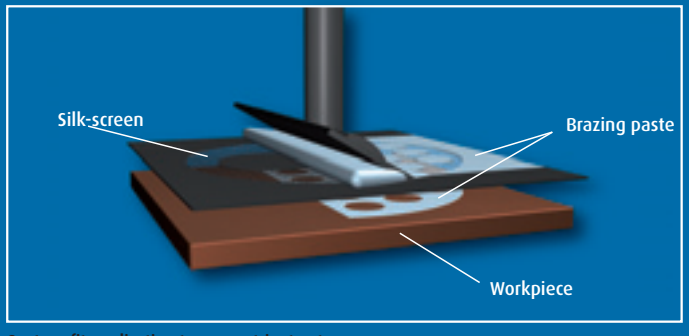
Application Processes

D = Dispensing



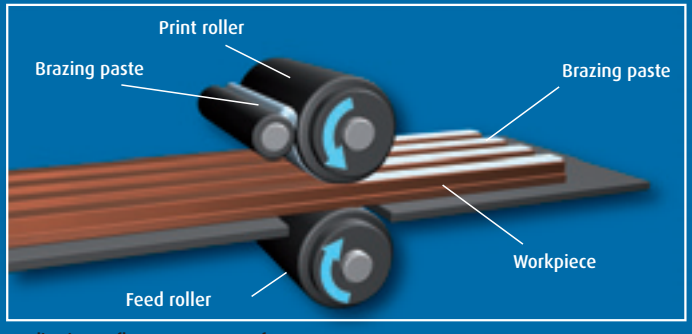
Point or line application

P = Screen Printing



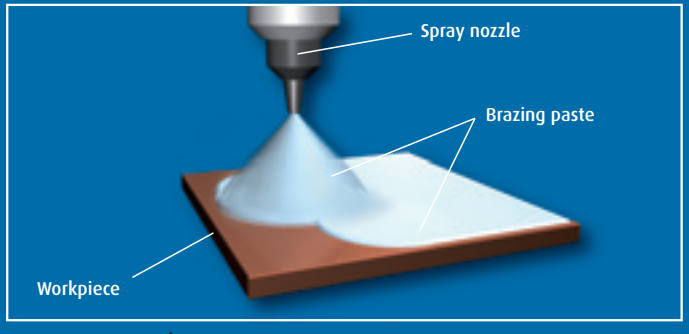
Contour-fit application to geometric structures

R = Roller-Coating



Application to flat component surfaces

S = Spraying



Large component surfaces

BrazeTec Copper Based Brazing Paste K

Name	Composition by Weight-%					Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp.	ISO 17672	Atmosphere [1]				Notes on Application
	Cu	Sn	Ni	P	Ag	in °C	in °C	in °C		A	B	C	D	
BrazeTec D 801	100	-	–	–	–	1,085	1,085	1,120	Cu 110	•	•	•	•	any steel, Ni and Ni alloys
BrazeTec D 807	80	-	–	5	15	645 – 800	645 – 800	720	CuP 284	•	–	•	•	Cu and Cu alloys
BrazeTec D 810	92	-	–	8	–	710 – 770	710 – 770	750	CuP 182	•	•	•	–	Cu and Cu alloys
Brazing paste systems for the CuproBraze® prozess														
BrazeTec CST 600 TD	76	15.6	4.2	5,3	–	590 – 610	–	650	–	•	–	•	–	Paste for preliminary brazing of tubes by means of spray application for the CuproBraze® process
BrazeTec CSF 600 TD	76	15.6	4.2	5,3	–	590 – 610	–	650	–	•	–	•	–	Paste for preliminary brazing of fin tips by means of roller application for the CuproBraze® process
BrazeTec CSH 610 TD	78.5	9.3	5.7	6,5	–	595 - 620	–	650	–	•	–	•	–	Paste for preliminary brazing of connection plates in the CuproBraze® process, 2% flux proportion
BrazeTec CSO 610.2 TD	78.5	9.3	5.7	6,5	–	595 - 620	–	650	–	•	–	•	–	Paste for brazing of junction boxes by means of dispenser in the CuproBraze® process, 2% flux proportion

[1] A = dry hydrogen B = vacuum C = H_2N_2-gas atmospheres (dew point –30 ° C) D = Exogas

The CuproBraze®-Process was developed especially for the flux free brazing of copper-brass radiators in protective gas furnaces. The brazing material used in this process is a phosphorous containing copper alloy. The radiators are produced in a manner that displays high resistance with high working temperatures as well. In addition the entire CuproBraze®-Process is also notable for its low costs. The different solvent based pastes can be applied by spraying onto the tubes (BrazeTec CST 600 TD) or through special roller-coating onto the fins. BrazeTec CSH 610 TD is used for the brazing of header plates to the tubes. These pastes can also be used for Cu-Cu-Brazing.

BrazeTec Nickel Based Brazing Paste L

Name	Composition by Weight-%						Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp.	ISO 17672	Atmosphere [1]			Solvent based Pastes			Water based Pastes	
	Ni	Cr	Fe	Si	B	P	in °C	in °C	in °C		A	B	C	P	R	S	D	S
BrazeTec 897	76	14	–	–	–	10	890	890	980	Ni 710	•	•	•	•	–	•	•	•
BrazeTec 1002	82.4	7	3	4.5	3.1	–	970 – 1,000	970 – 1,000	1,050	Ni 620	•	•	–	•	•	•	•	•
BrazeTec 1090	60	30	–	4	–	6	980 – 1,040	–	1,090	–	•	•	•	–	•	–	•	•
BrazeTec 1130	72	18	–	8	–	2	1,050 – 1,090	–	1,080	–	•	•	•	–	–	–	•	–
BrazeTec 1135	70.9	19	–	10.1	–	–	1,080 – 1,135	1,080 – 1,135	1,190	Ni 650	•	•	•	•	•	•	•	•

[1] A = dry hydrogen B = vacuum C = H_2N_2-gas atmospheres (dew point –30 ° C)

Modern application-systems can be used for almost all known powder-type nickel-based brazing alloys. The products shown below are available as standard products from BrazeTec. Among others, the application of the BrazeTec nickel-based brazing pastes is commonly practiced in heat exchangers and the automotive industry.

BrazeTec Silver Based Brazing Paste M

Name	Composition by Weight-%						Melting Range acc. to DSC	Melting Range acc. to ISO 17672	Brazing Temp.	ISO 17672	Notes on Application
	Ag	Cu	Zn	Mn	Ni	Sonstige	in °C	in °C	in °C		
BrazeTec D 7200	72	28	–	–	–	–	780	780	780	Ag 272	any steel, copper-Ni and Ni-alloys
BrazeTec D 5600	56	22	17	–	–	5 Sn	630 – 655	620 – 655	655	Ag 156	any steel, copper-Ni and Ni-alloys
BrazeTec D 4900	49	16	23	7.5	4.5	–	680 – 705	680 – 705	690	Ag 449	cemented carbides

The silver based BrazeTec brazing pastes can be used to braze any steel, copper, nickel, and cop per alloy. They can be applied with a dispenser or by screen printing. There is a risk of crevice-corrosion when brazing stainless steels if the braze contains zinc. The brazing pastes shown below are available on a standard basis, and depending on the application, contain flux or are flux free. Additional alloys are available upon request.

Solders & Soft Solder Fluxes

N BrazeTec Soft Soldering Pastes for Plumbing Technology

Name	Composition by Weight-%			Melting Range	Alloy according to DIN EN ISO 9453	Flux according to DIN EN 29454-1	To be used together with	Available Forms
	Sn	Ag	Cu	in °C				
BrazeTec Degufit® 3000 [1]	97	–	3	227 – 310	402	3.1.1.	BrazeTec 3 [1]	•
BrazeTec Degufit® 4000 [1]	97	3	–	221 – 224	702	3.1.1.	BrazeTec 4 [1]	•

[1] German Institute for Quality Assurance and Labeling · German Technical and Scientific Association for Gas and Water

The soft soldering pastes BrazeTec Degufit 3000 and BrazeTec Degufit 4000 are a mixture of soft solder powder, flux and a binder. They are applied as flux, and contribute to a high filling level of the soldering gap and thus to greater strength. They also prevent overheating of the pipes and fittings, as reaching the soldering temperature is clearly visible, the application of additional soft solder may be necessary.

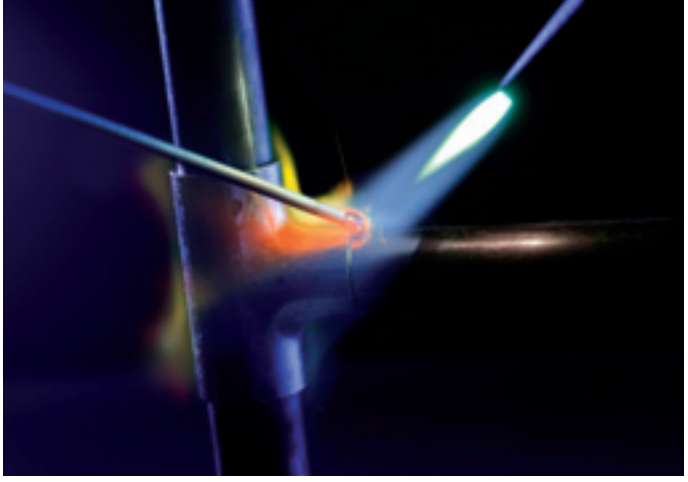
O BrazeTec Soft Solders for Plumbing Technology

Name	Composition by Weight-%			Melting Range	DIN EN ISO 9453	Suitable for Soft Soldering in Plumbing Technology		Alternative Processing with Flux DIN EN 29454-1 3.1.1./ Soft Solder Paste	Available Forms	
	Sn	Ag	Cu	in °C		Tube Material	Fitting Material			
BrazeTec 3 [1]	97	–	3	227 – 310	402	copper	copper, brass	BrazeTec Soldaflux® 7000 [1]	•	–
							red brass	BrazeTec Degufit® 3000 [1]		
BrazeTec 4 [1]	97	3	–	221 – 224	702	copper	copper, brass	BrazeTec Soldaflux® 7000 [1]	•	–
							red brass	BrazeTec Degufit® 4000 [1]		
BrazeTec Darifix 3 [2]	97	–	3	227 – 310	402	soft soldering of copper in construction plumbing (gutters, downpipes, etc.)		BrazeTec Soldaflux® 7000 [1]	–	•

[1] German Institute for Quality Assurance and Labeling · German Technical and Scientific Association for Gas and Water

[2] Delivery form: Rods 12 x 12 x 400 mm

The soft solder materials BrazeTec 3 and BrazeTec 4 are approved for copper tube installation according to DVGW. They are supplied in a handy 250 g coil. BrazeTec Darifix 3 is used mainly in building plumbing.



BrazeTec Soldamoll® Special-Soft Solders P

Name	Composition by Weight-%				Melting Range	Density	Shear Strength in MPa			Electrical Conductivity	DIN EN ISO 9453	Notes on Application	Available Forms			
	Sn	Ag	Cu	Sb	in °C	in g/cm³	Cu	Ms	S 235	in m/Ωmm²						
BrazeTec Soldamoll® 220	96.5	3.5	–	–	221	7.3	30	20	25	7.5	703	exceptional wetting, Water installations	•	•	•	•
BrazeTec Soldamoll® 230	97	–	3	–	227 – 310	7.3	30	20	25	7.5	402	–	•	–	•	–
BrazeTec Soldamoll® 235	95	–	–	5	235 – 240	7.2	30	20	30	6.2	201	–	•	•	–	–

BrazeTec's Soldamoll® special soft solders can be used in many application areas. They can be used for the soldering of brass, steel and copper components amongst other things.

BrazeTec Soldaflux® Soft Solder Fluxes Q

Name	Effective Temperature Range in °C	Type of Residue	Residue soluble in	DIN EN 29454-1	Notes on Application	Available Forms
BrazeTec Soldaflux® 7000 [1]	150 – 400	limited corrosive	water	3.1.1.A	carbon steel, non-ferrous-metals, copper tube installation	•
BrazeTec Slodaflux® A	200 – 400	not corrosive	–	1.1.2.A	copper and copper alloys	•
BrazeTec Soldaflux® K	150 – 450	highly corrosive	water	3.1.1.A	carbon steel, non-ferrous-metals	•
BrazeTec Soldaflux® Z	150 – 450	highly corrosive	water	3.1.1.A	stainless and scale resistant steels	•
BrazeTec Soldaflux® Z30	150 – 450	highly corrosive	water	3.1.1.A	steel, non-ferrous-metals	•

[1] German Institute for Quality Assurance and Labeling German Technical and Scientific Association for Gas and Water

Some BrazeTec Soldaflux soft solder fluxes are corrosive. For this reason, all flux residues must be removed from the component with water following soldering.

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