english E

DISCOVER THE WORLD OF MIXING

www.mti-mixer.de

Perfect Mix

Mixers for plastics

Mixers for chemical products

Mixers for fibre masses and much more...

Perfect Mix – The History of MTI

1975
February 10th, 1975 – The MTI success story begins on the solid foundation of many years of experience of the four company founders.

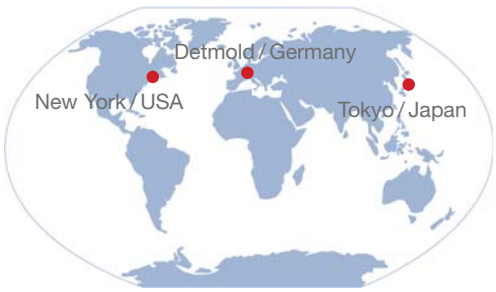
1976
MTI develops the Horizontal-Cooling Mixer in its first production plant in Detmold. The innovative, high-quality product sets new standards and brings MTI worldwide acclaim.

1982
The MTI machine designs are an international success. Demand increases. MTI moves into a new, larger production plant.

1987
The future lies in Asia. MTI issues a production license to the Japanese company TSK, thus securing a share of the Japanese market.

1990
MTI continues to grow. A new, modern production plant in Detmold is built on 22,000 sq.m. of land with over 6,000 sq.m. office and production area.

1991
Customer proximity is an important MTI success factor. In order to be close to its US customers, MTI founds Mixing Technology, Inc. and opens a new location in Houston, Texas.



Experience a virtual tour through the company at: www.mti-mixer.de

1995
MTI implements quality management in accordance with DIN EN ISO 9001.

1998
Only seven years after entering the US market, MTI establishes itself as a leading manufacturer of plastic processing equipment.

2000
25 years MTI, 25 years of success in mixing and processing equipment. Through investments in new technologies, MTI adapts to the challenges of changing markets and secures its top position in the worldwide industry.

2001
Through extensive restructuring measures, MTI continues to adapt to changes in the international markets.

2002
MTI successfully completes the company reorganisation. MTI now fully concentrates on the plastics processing industry.

2003
MTI Mischtechnik International GmbH evolves from MTI Mischtechnik Industrieanlagen GmbH. The success story of the 100 % family-owned company goes on.

MTI Mischtechnik International obtains certification through the DQS in accordance with DIN EN ISO 9001:2000.

Perfect Mix – Today

MTI – Quality and service around the clock

Always customer-oriented
MTI consistently converts customer needs into solutions. At the in-house laboratory, the heart of the company, MTI develops mixing systems that do exactly what the customer needs. Each mixer manufactured by MTI is unique. Even in service the customer is number one: the MTI hotline is available 24 hours a day, seven days a week, 365 days a year to everyone.

Highest quality
Three factors are essential for outstanding quality and longevity of MTI mixing systems: highly-qualified employees, the best materials and the latest technologies.

MTI employees receive the best education, are continuously trained to increase their skills and have decades of experience. Some have worked with the company for more than 25 years, their valuable knowledge contributing significantly to the quality of MTI mixing systems.

All MTI mixers are manufactured with high precision and from high-quality materials. 15 to 36 assemblies first arise from 2,500 to 6,000 machine parts in the first assembly step. In the second step, the assemblies are mounted to customer-specific mixers and subsequently equipped with State-of-the-Art control electronics according to current European safety regulations. The whole production takes place under constant quality control in accordance with DIN EN ISO 9001:2000. Before an MTI mixer leaves the plant, it is first checked for proper function and that it meets all customer requirements.

Shortest response times
At MTI, all work hand in hand to ensure that machines and spare parts arrive exactly when and where they are needed. The internal departments from production planning, purchasing and engineering to the final assembly continuously coordinate each other. External MTI partners guarantee just-in-time deliveries. The high flexibility of MTI employees ensures that schedules are met even with time-critical projects. Supported by a strong logistics network, intelligent warehousing and the storage of critical spare parts guarantee the delivery of urgently needed spare parts to almost any place in the world within 24 hours.

Regionally based, globally active
Local competence is essential for the MTI success. It begins with fast decisions in the 100 % family-owned business and continues with the careful selection of suppliers. MTI relies on partners from its own, tradition-rich industrial region of Westfalen-Lippe and benefits from their decades of experience, know-how and flexibility. MTI is proud to use machine parts manufactured exclusively in Germany.
MTI also exhibits local competency outside of Europe. MTI has a presence in three important international markets with additional locations in North America and Asia. Furthermore, there are more than 50 international sales representatives available as competent contacts for MTI customers.

MTI Mischtechnik International

Perfect Mix – Mixer Types

Vertical-High-Speed-Mixer Type M

- universally usable
- available with various drive options
- high filling level and flexibility through long mixer shaft and the MTI mixing tools
- high throughput rates with optimal mixing quality
- low operating costs
- space-saving compact design

Available sizes:

M 100	M 500	M 1200
M 250	M 600	M 1350
M 300	M 750	M 1500
M 350	M 850	M 2000
M 400	M 1000	

Vertical-Universal-Mixer Type M/HK

With a broad range of application in all branches of industry for optimal mixing of powdered, coarse-grained materials, as well as wetting, dispersion and moist granulation. Available with high speed chopper, various drive options and optional accessories.

Available sizes:

M 150 HK	M 1000 HK
M 250 HK	M 1500 HK
M 400 HK	M 2000 HK
M 600 HK	

Laboratory-Mixer Type M

The right laboratory equipment for your production machine. Equipped with frequency-controlled drive and integrated control panel. Vessel geometry and mixing tool speed in correspondence with the production machines.

Available sizes:

M 10	M 20	M 35

Further technical details can be found at: www.mti-mixer.de

Heating- /Cooling-Mixer-Combination Type M/K

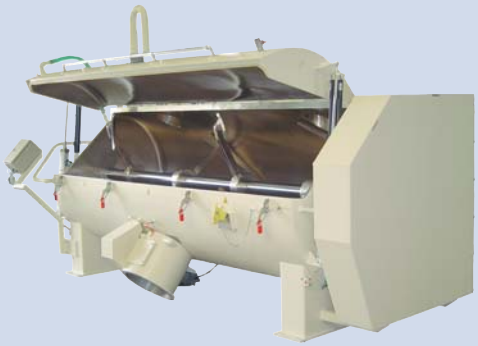
In vertical/horizontal design for economical preparation of plastics

- high throughput rates with optimal mixing quality
- space-saving compact design
- optimal cleaning possibilities

Throughput rates of 7-10 batches can be achieved with a MTI Heating-/Cooling-Mixer-Combination with a total output of up to 6500 kg/h and more. Up to 12 batches/h are possible, if the system is equipped with two cooling mixers.

Available sizes:

M 100 / K 400	M 850 / K 3300
M 250 / K 800	M 1000 / K 3500
M 300 / K 800	M 1000 / K 4250
M 300 / K 1200	M 1200 / K 5000
M 350 / K 1200	M 1350 / K 5000
M 400 / K 1600	M 1500 / K 5000
M 500 / K 1600	M 2000 / K 6000
M 600 / K 2400	M 2000 / K 8000
M 750 / K 2400	



Horizontal-Cooling-Mixer Type K

- high cooling efficiency through 100 % utilization of the available cooling surface
- large, cooled cleaning lid
- simply attachable to existing machines of other brands

Available sizes:

K 400	K 2400	K 5000
K 800	K 3300	K 6000
K 1200	K 3500	K 8000
K 1600	K 4250	

Horizontal-Universal-Mixer Type H

For mixing, wetting, agglomerating, desagglomerating and drying of bulk materials while intensively mixing at the same time.

Available sizes:

H 400	H 2400	H 5000
H 800	H 3300	H 6000
H 1200	H 3500	H 8000
H 1600	H 4250	

MTI Mischtechnik International

Perfect Mix – Vertical Mixers

a) Vertical Vessel/ Mixing Tools
The special vessel geometry together with the design and speed of the mixing tools ensure:
- intensive mixing
- short mixing cycles
- gentle treatment of the product

b) Pneumatic Lifting Device
Short-stroke pneumatic cylinder for lifting and swiveling of the mixer lid with end position monitoring

c) Material Defector (vortex support)
- Mounted laterally in the vessel wall (variable positioning)
- Supports product vortex and injection of liquid components

d) Vertical Mixer Discharge / Designs
- Generously dimensioned for fast and residue-free product discharging
- Size and design depends on vessel size and field of application
- Pneumatically operated with end position monitoring

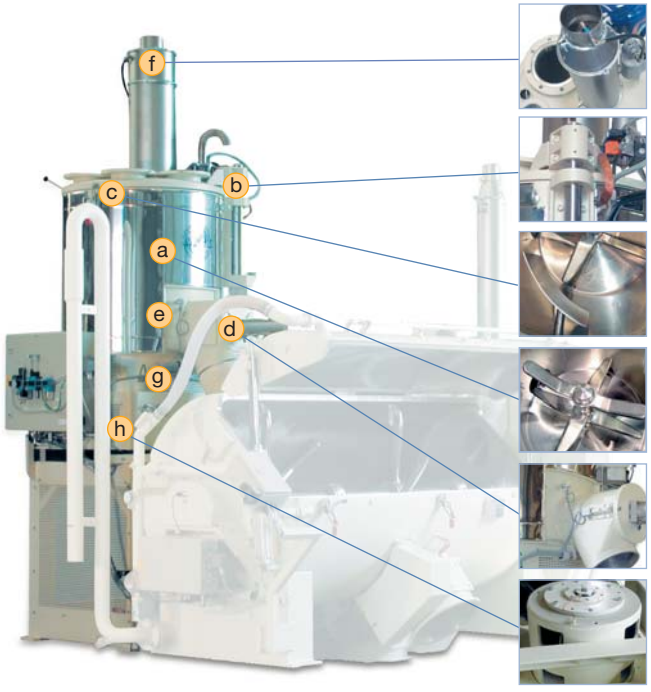
e) Temperature Measurement / Monitoring
- The sensor is also used for over temperature monitoring
- Embedded in PTFE sleeve for isolation

f) Jet Filter / Aspiration (optional)
- Filter housing made of stainless steel with special filter cartridges
- Size depends on vessel size and field of application
- Compressed-air filter cleaning after loading and discharging

Aspiration (accessory option)
- Supplemental with condensate-reducing ventilation system for the vertical mixer

g) Bearings / Seals / standstill control
- Generously dimensioned shaft bearing with mechanically machined bearing seats on both sides above and below the pulley
- Special shaft seals with air purge in the mixer vessel bottom
- Speed monitoring and standstill control

h) Drive Frame with V-Belt Drive
- Drive frame in rugged welded construction for supporting shaft bearings and V-belt drive
- V-belt drive designed depending on the installed motor size with sufficient safety reserves
- From 355 kW with intermediate drive for supporting the forces of the V-belt drive



i) Extended Base / Platform
Steel substructure with rubber-bonded shock absorbers between drive frame and extended base
- Extended machine base for positioning of the vertical mixer above the horizontal cooling mixer
- Platform mounted on the drive frame, accessible by stairs with handrails

Control Boxes and Motors
u) Control box on the vertical mixer
v) Vertical mixer motor designs

Vertical-High-Speed-Mixer Type M

Vertical-Universal-Mixer Type M/HK

Vertical-High-Speed-Mixer Type M

type	total vessel volume litre	working volume litre	single speed motor with FC** kW* regular	kW* strong	mixing tool speed	two speed motor kW* regular	kW* strong	mixing tool speed
M 100	138	115	37	45	102,0 – 1020	26 / 31	32 / 42	510 / 1020
M 250	260	220	55	75	81,0 – 810	47 / 63		405 / 810
M 300	301	255	75		81,0 – 810	47 / 63	62 / 82	405 / 810
M 350	350	300	75	90	66,6 – 666	50 / 75	65 / 95	333 / 666
M 400	440	385	110	132	66,6 – 666	65 / 95	80 / 120	333 / 666
M 500	525	440	110	132	66,6 – 666	80 / 120		333 / 666
M 600	680	575	160	200	59,0 – 590	110 / 160		295 / 590
M 750	790	670	160	200	59,0 – 590	115 / 180		295 / 590
M 850	930	790	200	250	52,4 – 524	135 / 235	160 / 250	262 / 524
M 1000	1.100	935	250	315	52,6 – 526	160 / 250		263 / 526
M 1200	1.200	1.020	250	315	52,6 – 526	160 / 250		263 / 526
M 1350	1.350	1.150	315	355	50,0 – 500			
M 1500	1.600	1.360		355	47,0 – 470			
M 2000	2.200	1.870	450	500	42,0 – 420			

* Motor sizes are based on standard formulations and can change for special applications.
** FC = frequency converter

Vertical-Universal-Mixer Type M/HK

type	total vessel volume litre	working volume litre	single speed motor with FC** kW* regular	kW* strong	mixing tool speed
M 150 HK	150	128	30	37	100 – 1150
M 250 HK	250	212	45	55	100 – 900
M 400 HK	400	340	75	90	100 – 800
M 600 HK	600	510	90	110	50 – 600
M 1000 HK	1.000	850	132	160	50 – 500
M 1500 HK	1.500	1.275	160	200	50 – 400
M 2000 HK	2.000	1.700	250	315	50 – 400

* Motor sizes are based on standard formulations and can change for special applications.
** FC = frequency converter

Further technical details can be found at: www.mti-mixer.de

Perfect Mix – Horizontal Mixers

j) Horizontal Mixing Vessel / Mixing Tools
The design of the mixing tools together with the appropriate speed ensures a three-dimensional material flow in the ring layer.

For mixing vessels with double jacket, a constant exchange of the product occurs with the cooling surface.

k) Speed- / Standstill control
mixer speed sensor and check, whether the mixing tools have stopped completely after shutting down the machine.

l) Lifting device for Lid
The lid lifting is supported by gas springs during opening and closing.

Mixers starting at K 1600, additionally equipped with pneumatic cylinders for opening and closing operated by a two-hand control mounted on the side of the mixer.

m) Lid Safety / Safety shoe
After opening the lid, a safety shoe prevents the mixing tools from turning.

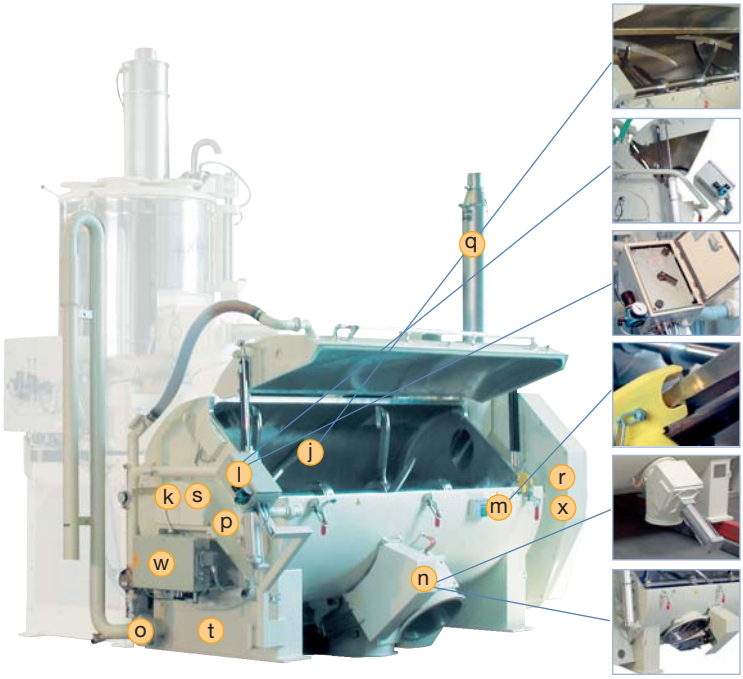
n) Horizontal Mixer Discharge
- Generously dimensioned for fast product discharging, available in several designs
- Number and sizes depending on the vessel size
- Pneumatically operated with end position monitoring

o) Cooling Water Installation / Double Jacket
High-efficiency multi-zone cooling with forced water channelling for optimal heat dissipation. Number of cooling zones depends on the vessel size.

p) Temperature Measurement
by sensor, embedded in PTFE sleeve for isolation

q) Jet Filter
- Filter housing made of stainless steel with special filter cartridges
- Size depends on vessel size and field of application
- Compressed-air filter cleaning after feeding and discharging

r) V-Belt Drive / Gear Drive
MTI offers two different drive variants for the horizontal / cooling mixer series:
a.) V-Belt drive (up to max. 45 kW)
b.) Gear drive (required from 55 kW)



s) Bearings / Seals
- Generously dimensioned shaft bearings mounted on bearing seats on side of the vessel
- Special shaft seals with air purge, mounted on both sides in the mixer side plates

t) Special Accessories
MTI offers a number of options and accessories for the horizontal / cooling mixers.
These include among others:
- High speed chopper, front-mounted in the vessel side plates
- Nozzles for liquid injection
- sampler device for small quantities
- vertical mixer discharge for sampling

Control Boxes and Motors
w) Control boxes on horizontal mixers
x) Horizontal mixer motor designs

Horizontal-Cooling-Mixer Type K

Horizontal-Universal-Mixer Type H

Horizontal-Cooling-Mixer Type K

type	total vessel volume litre	working volume litre	single speed motor kW* regular	kW* strong	mixing tool speed	drive variants m/s	V-belt drive	geared drive
K 400	410	205	7,5		187	5,7	x	x
K 800	780	390	11		147	5,6	x	x
K 1200	1.230	615	15		125	5,9	x	x
K 1600	1.530	765	15		112	5,7	x	x
K 2400	2.700	1.350	22	30	90	5,6	x	x
K 3300	3.300	1.650	30	37	90	5,6	x	x
K 3500	3.585	1.790	30	37	90	6,1	x	x
K 4250	4.255	2.125	37	45	90	6,1	x	x
K 5000	5.025	2.500	55	75	90	6,1		x
K 6000	6.050	3.025	75	90	75	5,6		x
K 8000	8.080	4.040	75	90	75	5,6		x

* Motor sizes are based on standard formulations and can change for special applications.

Horizontal-Universal-Mixer Type H

type	total vessel volume litre	working volume litre	single speed motor kW* regular	kW* strong	mixing tool speed	drive variants m/s	V-belt drive	geared drive
H 400	410	287	7,5		187	5,7	x	x
H 800	780	546	11		147	5,6	x	x
H 1200	1.230	861	15		125	5,9	x	x
H 1600	1.530	1.071	15	22	112	5,7	x	x
H 2400	2.700	1.890	22	30	90	5,6	x	x
H 3300	3.300	2.310	30	45	90	5,6	x	x
H 3500	3.585	2.510	30	45	90	6,1	x	x
H 4250	4.255	2.979	37	45	90	6,1	x	x
H 5000	5.025	3.518	55	75	90	6,1		x
H 6000	6.050	4.235	75	90	75	5,6		x
H 8000	8.080	5.656	75	90	75	5,6		x

* Motor sizes are based on standard formulations and can change for special applications.

Further technical details can be found at: www.mti-mixer.de

MTI Mischtechnik International

Perfect Mix – Heating-/Cooling-Mixer-Combination

Heating-/Cooling-Mixer-Combination Type M/K								
type			preparation of PVC-U (rigid PVC)			preparation of PVC-P (soft PVC)		
			kg / batch*	batches / h	kg / h	kg / batch	batches / h**	kg / h
M	100 / K	400	60	8	480	60	6	360
M	250 / K	800	100	8	800	100	6	600
M	300 / K	800	120	7	840	120	5	600
M	300 / K	1200	120	8	960	120	6	720
M	350 / K	1200	150	8	1.200	150	6	900
M	400 / K	1600	190	8	1.520	190	6	1.140
M	500 / K	1600	220	8	1.760	220	6	1.320
M	600 / K	2400	290	8	2.320	290	6	1.740
M	750 / K	2400	330	8	2.640	330	6	1.980
M	850 / K	3300	400	8	3.200	400	6	2.400
M	1000 / K	3500	480	7	3.360	480	5	2.400
M	1000 / K	4250	480	8	3.840	480	6	2.880
M	1200 / K	5000	500	8	4.000	500	6	3.000
M	1350 / K	5000	575	8	4.600	575	6	3.450
M	1500 / K	5000	650	8	5.200	650	6	3.900
M	2000 / K	6000	950	6	5.700	950	5	4.750
M	2000 / K	8000	950	7	6.650	950	6	5.700

* Batch sizes are based on a bulk density of 0.5 kg/litre, a heating mixing end temperature of 120°C and feeding according to cycle.

** PVC-P (soft) formulations: number of batches are based on maximum 80 pph plasticizer (parts per hundred parts PVC).

Further technical details can be found at: www.mti-mixer.de

Perfect Mix – Control-Systems and Motors

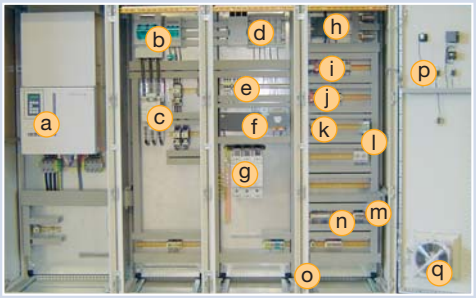
MTI Motors
In order to meet the high MTI quality standards in the field of drive technology, MTI uses German motors exclusively.
There are 3 different drive options available:

Single speed motor (one mixing speed)
Two speed motors (pole-changeable) (2 constant speeds) 1.) Feed and discharge / 2.) Mixing speed
Variable speed with frequency converter (control range 1:10)

MTI Control-Systems
MTI uses state-of-the-art technologies in the controls sector.
The components are from Siemens®, nearly exclusively.
MTI offers 3 different control modules:

Control cabinet with integrated control panel
Control cabinet with load part Optional with control part
Mixer wired to terminal strip

MTI Standards & Quality policy
The following figure illustrates which standards & quality policy MTI uses on its control cabinets.



a) Frequency converter
b) Safety load break switch
c) Power contactor
d) Tab fuses
e) Automatic circuit breakers
f) Power supply
g) Load break switch
h) PLC (automation system)
i) Safety relays and switching devices
j) Control / safety relays and switching devices
k) Coupling relays / potential-free contacts
l) Measuring transducer
m) Plug-in connectors
n) Terminal strips
o) Equipotential bonding
p) Display / control elements
q) Control cabinet ventilation

MTI Control-Systems
MTI offers 7 different Control-Systems variants:

1) Control cabinet with integrated control panel (MTI control stage 1)
System connected by DP/DP coupler
- Integrated control panel designed for hand and automatic operation.
- The mixer is operated by using an Operator Panel OP177B.
- The connection to the on-site central control system for component calls is done by Profibus and the DP/DP coupler.
- The control is designed for up to 3 component calls.

2) Control cabinet with integrated control panel (MTI control stage 1)
System connected by potential-free contacts
- Integrated control panel designed for hand and automatic operation.
- The mixer is operated by using an Operator Panel OP177B.
- The connection to the on-site central control system for component calls is done by potential-free contacts.
- The control is designed for up to 3 component calls.

3) Control cabinet with integrated control panel (MTI control stage 2)
System connected by DP/DP coupler
- The OP270 (10" color display) is used instead of the OP177B (5,7" color display).
- Otherwise, executed as described under variant 1.

4) Control cabinet with integrated control panel (MTI control stage 2)
System connected by potential -free contacts
- The OP270 (10" color display) is used instead of the OP177B (5,7" color display).
- Otherwise, executed as described under variant 2.

5) Control cabinet with load part and control stage 3
- Load part without PLC and without Operator Panel.
- The hand and automatic operation of the mixer is done by the on-site central control system.
- The digital and analog control signals of the mixer lead to the decentralized peripheral system.
- The connection to the on-site central control is done by Profibus DP and interface module.

6) Control cabinet with load part
- Load part without PLC and without operator panel.
- The hand and automatic operation of the mixer is done by the on-site central control system.
- The digital and analog control signals of the mixer are wired to a terminal strip.

7) Machine wired to terminal strip
- Without control cabinet
- The machine is wired to a terminal strip.

Perfect Mix – Contact

Your way to MTI

Detailed driving directions can be found at:
www.mti-mixer.de

24-hour service hotline: +49 (0) 52 31-9 14 - 0

DISCOVER THE WORLD OF MIXING

Headquarters

MTI Mischtechnik International GmbH
Ohmstrasse 8
D-32758 Detmold, Germany
Tel +49 (0) 52 31-9 14-0
Fax +49 (0) 52 31-9 14-2 99
info@mti-mixer.de
www.mti-mixer.de

Sales and Service North America

Mixing Technology, Inc.
36 Wes Warren Drive
Middletown, NY 10940, USA
Telefon: +1 (845) 695-2110
Telefax: +1 (845) 695-2111
E-Mail: info@mti-america.com
www.mti-mixer.de

10.07 e