

THE WAY TO MAKE IT



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# JOINTLY OBLIGATED TO INNOVATION

**Innovation has many facets.**

In standard machines, Komax Wire focuses on developing new machine designs while also putting emphasis on further improving and optimizing established processes. For instance, it seeks to boost the efficiency of your production operations or of quality monitoring instruments in processing. We can offer you interesting new concepts in these areas.

Along with our range of standard machines, we have great expertise as a developer of customer-specific solutions to cover the entire gamut of wire processing requirements. In these “value added applications”, innovations are an integral part of each project. Komax Wire is your reliable partner in this respect, too, with more than 35 years of experience in wire processing.



**Matthias Schulthess,**  
Head of Marketing

**Marc Schürmann,**  
Head of Sales

# BT 712 WITH PROGRAMMABLE STRIPPER

## A powerful duo

### Boosting daily production

There is now a new option available for the bt 712: a programmable stripper that leaves virtually nothing to be desired. In situations where machine changeovers are frequent, the reliable and programmable DigiStripper greatly influences production output. Setup time is reduced by more than 50 percent merely through the use of programmed articles. Mechanical adjustments are cut to a minimum. There is also a dramatic reduction in the material used for setup.

### Process control thanks to integrated stripping functions








Functions like the cut-off of pulled strands and zero cut have also been integrated along with the DigiStripper. Zero cut is needed especially when shielded cables or twisted conductors are processed. It ensures that the insertion position in the crimp is correct even if the insulation is pulled forward. A wayback operation ensures that no strands are pulled forward and enables even the most difficult insulation to be stripped reliably in a controlled process.

The cycle time is ultra-short, being far less than one second for stripping and crimping. Snippets from stripping are collected in a scrap drawer. The DigiStripper neatly cuts off and removes any bad contacts detected by the CFA. As an option, an additional bad contact cutter is available for use with the bt 712. Compared to the DigiStripper, this cutter can cut through contacts and thus allow reworking.

### The latest generation of crimp force analysis

The new fully integrated crimp force analysis CFA+ is extremely user friendly. It helps the operator prevent set-up errors and independently calculates optimum parameters to combine quality with a high production output. CFA+ is a reliable means of production monitoring. It saves time and money and is the ideal tool for quality-conscious user. <

01

Stripping with partial strip		Forced crimp height verification
Stripping with full strip		Forced pull-out force measurement
Exact cut		Crimp force analysis
Crimping		Good/bad separation
Mechanically adjustable crimp height		Bad contact cut-off
Double stroke function		Multi-wire cable and twisted wires
Double crimp (2 in 1)		Pulled strands cut-off

02



03



- 01 Functions on the bt 712 DS
- 02 Komax bt 712 with DigiStripper
- 03 DigiStripper on bt 712

«Komax offers well-established manual workstations for stripping and crimping that meet the toughest quality requirements and that deliver the reliable processing of a fully automatic crimping machine. The Komax bench-top series now offers the bt 712 with the programmable stripping unit DigiStripper. Combined with the DigiStripper, CFA+ and bad contact cutter, Komax bench-top presses offer an ideal way to achieve efficient, high-quality production free of errors.»



Tobias Holenstein,  
Product Manager

## Your benefits

With Komax DigiStripper on bt 7x2

- Excellent stripping quality
- Quick setup
- Integrated bad contact cut-off
- Simple process initiation via sensor
- Reduced reject rate with CFA+

# KAPPA 322 AUTOMATIC CUT AND STRIP MACHINE

**A strong multi-functional machine for processing multiple inner conductors, flat ribbon cable and single conductors**

## Powerful yet gentle wire drive

For example, eccentrically arranged conductors, multiple inner conductors or conductors with thin-walled jacket insulation allow only shallow cuts for stripping and therefore require high-level pull-off forces. The powerful motor with selectable drive (e.g. roller drive or belt drive) offers optimum power transmission for a huge variety of insulation materials. The pressure setting can be switched automatically to fit the processing involved, i.e. transporting or stripping. This feature is gentler on the drive unit and prevents the deformation of the cable.

## Jacket stripping, separating and stripping inner conductors

The swiveling drive units with two processing positions turn the Kappa 322 into a cut and strip specialist for cables up to 12mm in diameter. The inner conductors in  $4 \times 0.35\text{mm}^2$  to  $3 \times 2.5\text{mm}^2$  cables are separated using a unique separation principle and then stripped with great precision. The principle is ideal for long as well as extremely short stripping lengths. The blade block with quick-action lock is highly convenient and ensures easy changeovers to other cut and strip tasks such as flat ribbon cables, stripping of jacket cables or single conductors. <



**Kappa 322 automatic cut and strip machine**

«The new Kappa 322 from the Kappa 3xx product family has versatile processing capabilities that make it a compelling performer when it comes to cutting, separation and stripping. Even difficult-to-process cables with cross sections of  $0.05\text{mm}^2$  to  $16\text{mm}^2$  can be processed with top quality results.

The quick-change blade fixture is combined with an ingenious approach to wire separation and a robust machine design to deliver high productivity and maximum machine availability.»



**Martin Bossart,**  
Product Manager



**Wire samples: single conductor, flat ribbon and multiple inner conductors**



**Belt drive and blade block**

## Your benefits

- Machine with powerful pull-off process and flexible two-blade principle for  $0.05 \text{ mm}^2$  to  $16\text{mm}^2$  wires
- Separates and strips inner conductors in cables sized  $4 \times 0.35\text{mm}^2$  to  $3 \times 2.5\text{mm}^2$
- Separation principle for extremely short and extremely long stripping lengths
- Different drive versions for optimum power transmission
- Easy and quick to convert
- Attractive value for the money

# IMS 295 INKJET FOR KAPPA CUT AND STRIP MACHINES

## Expanded range of inkjet marking solutions

### ims 295 for Kappa 350

Minimal cutting losses are relevant to costs especially with large gauge cables. That is why the marking head is positioned as close to the cutting head as possible.

With the new mounting kit, the standard Komax marker with straight marking head can also be used on the Kappa 350, the same inkjet that is used on the other Komax machines.

### Basic inkjet kit for Kappa 310 - 330

The basic inkjet kit was designed for customers with a small budget. It can apply one marking to each end of a cable. The ims 295 inkjet marker is triggered by an output signal.

As requirements grow, the fully integrated solution can be retrofitted with TopWin and PC (except in the case of the Kappa 310).

### New marking functions with TopWin 13.1 for Kappa

TopWin offers additional interesting marking functions in Version 13.1:

- Logo marking with a convenient logo editor
- Alternating marking to allow the text to be read from both directions
- Text repetition

## Your benefits

- Fast, flexible wire marking with inkjet
- Basic inkjet kit for Kappa 310-330
- Shortest zero cut with Kappa 350
- Fully integrated marking functions with TopWin:
  - Marker operation integrated in machine control system
  - Linking of marking texts with product data
  - Connection to control station via WPCS (option)
  - Efficient marking functions such as positional markings, continuous marking, text repetition, alternating marking, etc.



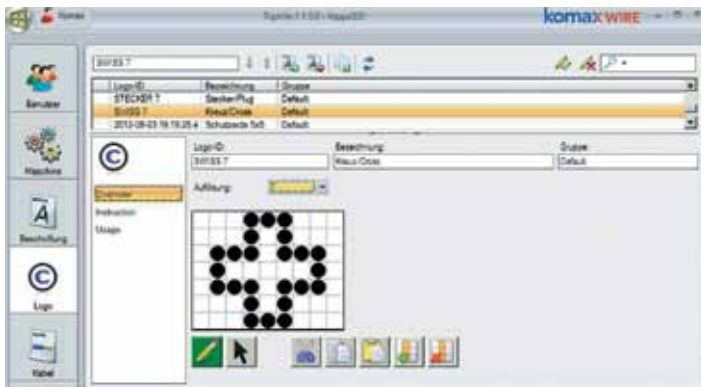
The inkjet ims 295 BC



The marking head of ims 295 on Kappa 350

«The inkjet marker has established itself as the preferred solution for wire marking. It has compelling advantages such as short cycle times, product change without changeover time and the flexible layout of marking content.»

Ever since the breakthrough of inkjet marking on fully automatic machines, it has been used with increasing frequency on cut and strip machines. That is why Komax has expanded its range by adding a basic kit for small budgets and a solution for Kappa 350 that also features expanded marking functions.»



Reinhold Vollmer  
Product Manager

# ENSURING THE QUALITY OF STRIPPING

## New features on the Alpha 355: fully automatic conductor detection, strip quality check and digital microscope

One current automobile crimp standard for solder-free electrical connections contains the following stipulations: "The individual strands are not allowed to be scratched or otherwise damaged during stripping." To comply with this specification, one needs high-quality cable material, perfect blades and a fully automatic crimping machine that operates with precision. Practice shows time and again, however, that cable materials have tolerances, blades wear out, and fully automatic crimping machines are not always at the optimum settings. Blades may accidentally touch the strands in a conductor during production or the ends of conductors may become splayed or deformed. This type of damage is scarcely visible to the naked eye and there is a risk of it leading to problems with quality or service life.

### Fully automatic conductor detection (ACD)

Komax developed automatic conductor detection (ACD) for the Alpha 355 machine family. It detects even the slightest contact between blades and conductor strands while production is going on. Based on a capacitive measuring principle, ACD is integrated in the blade holder and uses the regular stripping blades. Parameters can be adjusted to set ACD sensitivity at the desired level. The machine removes flawed conductor ends fully automatically yet still delivers the full output in the end. The operating range covers the entire cross-section spectrum from 0.13 mm<sup>2</sup> to 6 mm<sup>2</sup>, stripping with full or partial strip, any desired conductor length and all known conductive strand materials.

«Quality requirements in wire processing are becoming steadily tougher as a result of miniaturization and new technologies. With its newly developed automatic conductor detection (ACD), stripping quality check (SQC) and Komax 345 digital microscope, Komax is putting new types of products on the market for its family of Alpha 355 fully automatic crimping machines.»



**Daniel Rogenmoser,**  
Product Manager

**Chris Schnellmann,**  
Product Manager

### Your benefits

- Improve stripping quality with no loss of performance
- Detect quality problems in stripping early on and take countermeasures
- Remove defective cables fully automatically
- Traceability thanks to statistics and image saving

- 01** The ACD conductor detector is integrated in the blade holder to save space
- 02** Stripped conductor with blade abrasion marks is reliably detected with ACD
- 03** SQC on Alpha 355 allows a visual check on stripping quality
- 04** Sample images of SQC: good stripping, pulled strands, splayed strands
- 05** Microscope function integrated in the machine software
- 06** Stripping and crimping samples can be viewed highly magnified with the Komax 345 microscope



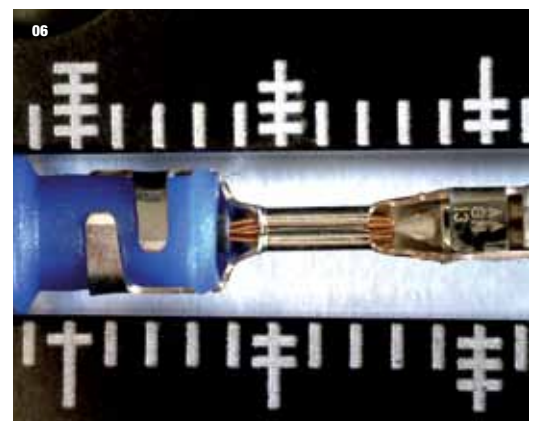


### Strip quality check (SQC)

Unlike ACD, the SQC focuses on inspecting the result instead of the cutting process. Without impairing performance in any way, this visual check monitors the stripping length and the presence of pulled or splayed stranded wire. Products detected as defective are automatically removed. Operation can proceed without additional teaching of article parts thanks to the superb integration of these functions in the machine software. Values and images are saved, a feature that enables traceability. The strip quality check (SQC) is an ideal supplement to ACD. But the SQC is also extremely helpful on its own. If the operator uses the strip quality check instead of the CPS option («cut pulled strand»), output can be boosted by an average of 10 percent depending on conductor length and quality.

### Digital microscope Komax 345

With the Komax 345 digital microscope, stripping and crimping can be examined highly magnified to monitor quality. Features that are scarcely detectable with the naked eye become visible when looked at through this high-resolution digital microscope. The sample cables are first fixed in place under a clamp that can be finely adjusted. Then they are precisely positioned with a cross slide and viewed on the machine screen. This image can be saved if desired. The software included in the delivery is fully integrated in the TopWin machine software, ensuring efficient operation. The microscope aids in early detection of quality problems. By saving images, it also opens up new possibilities for traceability. <



# GAMMA 263 – BROAD RANGE OF OPTIONS FOR THE SMART CRIMPER

## High output and high degree of process control

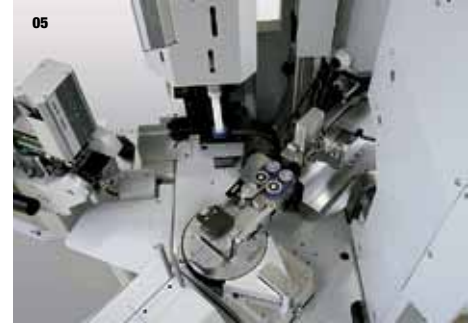
This fully automatic crimping machine is characterized by its combination of simplicity, functionality, efficiency and process control as well as a high output and a small footprint. SMART is an acronym standing for Simple, Maintenance friendly, Affordable, Reliable and Top Quality.



## Processing quality

The customary Komax quality standards are incorporated in full thanks to the use of the mci 712/722 presses with CFA/CFA+, the mci 765 C seal module, the standard SPM seal position monitoring function, and the integrateable crimp height and pull-out force measurements. In addition, the integrateable Datalogic PM8300 bar code scanner can be used for verifying the materials loaded on the machine (cables, contacts, etc.). In the cable drive system, a second integrated encoder ensures maximum length and repetition accuracy for stripping and cable lengths. The user can switch the wire drive from belt-driven to roller-driven and vice versa to fit individual needs and do these adjustments himself in no time at all. The model is highly productive thanks to the active wire deposition system with automatic batch sorting. A more affordable deposition without automatic batch sorting is also available depending on the application.





### Options and accessories

A broad range of options and accessories also used on the already familiar Komax fully automatic crimping machines can be employed on the Gamma 263. These options efficiently assist the customer with daily work and help to optimize and simplify production.

### WPCS

The WPCS interface allows quick and easy integration in existing production networks at any time.

### Inkjet

The complete Komax ims 295 family is integrated on the Gamma 263. You have your choice of the ims 295 BS (Black Small), ims 295 BC (Black Color) or the ims 295 MC (Multi Color). Select the one that is the optimum solution for your application. One system – one partner.

The Imaje 9040 from Markem Imaje is also integrated.

### Prefeeder

The optional prefeeder (roller-drive or belt-drive) is deeply integrated in the machine control system and ensures gentle wire feed from loose coils, cable drums, conipacks or central cable storage systems.

### Quick change tooling system

This product prepares contacts and the crimping tool for the next job while the machine is running and changes the crimping tool quickly. These functions make it highly attractive, technically and economically.

### Extended small gauge kit

#### (kit for processing small gage wires)

This kit features an active straightening unit with fine rollers as its main unit, allowing it to process fine, small conductors in a controlled process with maximum production output and gentle handling of the conductors.

### Hot-stamp marker

The k26 hot stamp marker can be integrated on the Gamma 263 as an upstream station.

The Gamma 263 is a definite gain in every respect. We invite you to check out this compact yet powerful machine. You are sure to be fascinated by it. <

«The SMART crimper has established itself in the market since its launch in the summer of 2011 and has turned out to be a real gem. Thanks to its compact design, it ideally combines efficiency with a high degree of functionality.»



**Georg Rickenbacher,**  
Project Manager

## Your benefits

- Small investment that yields high output and high degree of process control
- Belt or roller-driven wire drive in a single machine for gentle processing
- Reliable crimp technology with standard Komax crimp presses and CFA/CFA+
- Compact and user-friendly unit that features the smallest of footprints
- Broad range of usable options

01 Gamma 263 – the SMART crimper

02 Inkjet ims 295 on Gamma 263

03 Prefeeder Gamma 263

04 Quick change tooling system

05 Crimp press and seal module

# WE LOVE CHALLENGES

## Feasibility tests for cables that are difficult to process

### When stripping becomes a challenge

Today's cabling is enormously diverse and there continues to be great potential for further advances. The trends to smaller gage cables, thinner insulation thicknesses and new cable materials influence cable processing in crucial ways. Varying insulation thicknesses, twisted strands and multi-layered conductors also pose genuine challenges.

### Komax Wire offers its support

If wire processors hit a dead end with their usual cutting and stripping blades, Komax Wire offers its support to help them come up with a solution. The analysis starts with the wire processor sending in 30 meters of cable, the processing information and the machines and blades being used. Knowledge about the blade material, hardness, coating, cutting geometry and cutting speed enable the best solution to be found to a given task when combined with machine characteristics such as cable feed, type of transport, acceleration and others. Practical suitability is then checked in a feasibility test. At this point, Komax uses its large stock of already existing special blades.



Form stripping blade with guides for rubbery, expandable insulation (battery cables)

### Cable-specific blades and guides

If the desired stripping result is still not achievable with special blades, cable-specific blades with additional cable guidance are produced and optimized to the point where a perfect interplay of cable, machine and blades is attained. Cable-specific blades and guides are often the only remaining way to process difficult cables. An enormous amount of time is taken up from the first inquiry to the finalization of the tests. Aware of the urgency of handling these orders especially for wire processors, Komax Wire makes every effort to minimize the throughput time to just a few work days. This service is naturally available to all customers worldwide. We are happy to clarify the issue of technical feasibility for you and to provide you with advice. <

«What can you do if you are achieving unsatisfactory stripping results with your current machinery and the blades available to you? Komax Wire has just the right solutions for your customers.»



Stefan Tschofen,  
Director Business Development

### Your benefits

- Competent advice on solutions for problems
- Determination of optimum machine parameters
- Cable-specific blades and guides
- Best possible stripping results
- Processed cables for quality inspection

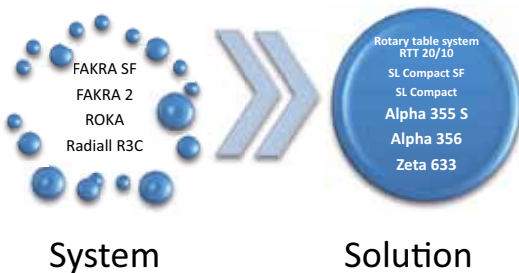
# FAKRA PROCESSING ON DIFFERENT PLATFORMS

## Solutions for FAKRA processing from Komax and SLE

### Broad range of connection systems

The growing demand for infotainment in road vehicles has triggered an increase in the number and types of connector interfaces for data transmission. This diversity is also increasing the demands put on wire processing. Wire processors must analyze the individual processing steps for each application and determine a suitable process.

**Komax and SLE have experience with the following connection systems:**



### SL Compact semi-automatic crimping machine

The Compact SL system is a basic machine for semi-automatic wire processing of contact systems to be mounted in multiple steps. It was designed to meet the highest quality standards and to render wire processing flexible and time-saving. All processes are arranged to fit into a tiny space and are monitored in each case by measuring devices.



Different contact systems

«FAKRA (FACHARBEITSKREIS AUTOMOBIL) is a German group of experts from vehicle manufacturers and equipment suppliers working on setting standards for connectors for road vehicles. FAKRA is an all-present issue in data communication today. There are different FAKRA versions and models. So, one FAKRA product is not necessarily identical with another. Komax has teamed up with its partner SLE Quality Engineering to delve into these complex processes and to offer solutions on different platforms.»



**Marcel Wolfisberg,**  
Project Manager Applications

Precise mechanical parts and reliable components enable a highly stable process with short processing times.

This flexible system allows the processing of different contact systems such as FAKRA SF from Rosenberger, for example, or Radiall R3C.

### Komax Alpha 355 S and Alpha 356

The Komax Alpha 355 S machines are masters at performing conductor preprocessing steps such as cutting, stripping or crimping of support sleeves. The flexible Alpha 356 platform can even be used for processing complete one-sided FAKRA SF style contact systems. This task involves processes such as slipping on braided shields, crimping inside and outside conductors as well as quality monitoring. Whether you opt for the Komax Alpha 355 S or the Alpha 356, both process the Radiall R3C contact system fully automatically. <



**SL Compact SF**

### Your benefits

- Komax and SLE Quality Engineering have extensive experience with different contact systems.
- Broad range of solutions (to match the given production volumes)
- Solutions based on proven equipment
- Large number of machines installed in the field

# NEW SOLUTION INVOLVING RESISTANCE WELDING

**Another solution from Komax to make resistance compacting even more efficient**

## Highly diverse sets of conductors

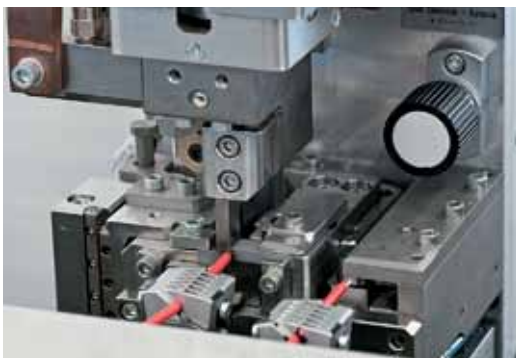
Along with differing conductor lengths and varying operations for end processing, conductor sets can also involve conductors with different cross sections made of different materials. These are familiar challenges for Komax. In a collaborative effort between Komax Germany, Komax Switzerland and the long-term Komax partner EKS Keller, Komax has now developed a sequence-capable resistance welding module.

## Mode of operation

The KPA060 resistance welding system compacts round stranded wires made of any material. The conductor is first positioned precisely by two variably adjustable ceramic insulation plates and then compacted with an upper and a lower electrode. The entire cross section range can be covered by a single electrode.

Middle-frequency welding is the technology utilized. It delivers very neat, high-quality compaction and allows path measurement, end-mass monitoring and parts detection to be carried out and analyzed with a high degree of accuracy. The graphical user interface affords a good overview of the current process at all times. Results on electrical current, resistance and path measurement are depicted graphically. Drift analysis and data archiving are two further possible functions.

A patented cleaning system supplements the monitoring systems. The cleaning intervals can be set to match the process and materials in use. <



Welding process on Zeta 633



**Marcel Wolfisberg,**  
Project Manager Applications

«The requirements placed on reliable, high-quality cable processing today are well-known. For exacting wire-end processing such as resistance compacting, the demand increases not only for better quality but also for bigger outputs. Komax offers a new solution featuring sequence-capable resistance welding. It adds double the value for customers when integrated in the firmly established Komax Zeta 633, a model designed for sequential processing.»



Module KPA 060

## Your benefits

- Different compaction within a sequence
- No manual switchover between welding programs
- Compaction width can be set without affecting the cycle time.
- Cross section range from 0.12 mm<sup>2</sup> to 6mm<sup>2</sup>
- Economical to service and maintain
- Compact, space-saving design
- Can be integrated in Komax Zeta 633 and Alpha 356



Welding sequence

# EXHIBITIONS 2013

Date	Week	Name of Exhibition	Representative	Place / Country
01/16 – 18/2013	3	Internecon	MCM Cosmic	Tokyo / JP
02/13 – 14/2013	7	Southern Manufacturing Show	KPE GB	Farnborough / GB
03/05 – 10/2013	10	TIMTOS 2011	Chain Year, Taiwan	Taipeh, TW
03/19 – 21/2013	12	Productronica Shanghai 2013	Komax China	Shanghai / CN
03/19 – 22/2013	12	Amper	Komax Germany	Brno / CZ
04/01 – 05/2013	14	FIEE	Komax Brasil	Sao Paulo / BR
04/10 – 12/2013	15	ElectronTechExpo	Ostec Moscow	Moscow / RU
04/08 – 12/2013	15	Hannover Messe	Komax Germany / AAT Aston	Hanover / DE
05/08 – 09/2013	19	National Electrical Wire Processing Technology Expo	Komax USA	Milwaukee / USA
06/17 – 20/2013	25	Electro	Ostec Moscow	Moscow / RU
08/13 – 18/2013	33	MAKS	Ostec Moscow	Moscow / RU
09/04 – 06/2013	36	Electronica & Productronica India 2013	Komax India	New Delhi / IN
09/17 – 20/2013	38	Energetab	Evoltec	Bielsko -Biala / PL
09/30 – 10/4/2013	40	Elektrotechnik Exhibition	Smans BE	Utrecht / NL
10/01 – 03/2013	40	Smart Automation Austria	Thonauer AT	Linz / AT
10/02 – 06/2013	40	CEATEC Japan 2013	MCM Cosmic	Tokyo / JP
10/08 – 10/2013	41	Carrefour de L'Electronique CIEN	Komax France	Paris / FR
10/17 – 20/2013	42	TIB Bucharest	Thonauer RO	Bucharest / RO
October 2013		ELO SYS	Thonauer SK	Trencin / SK
11/12 – 15/2013	46	Productronica München	Komax CH / Komax DE	Munich / DE
11/12 – 15/2013	46	Elmia Subcontractor exhibition	Adcontact	Jönköping / SE
11/26 – 28/2013	48	SPS / IPC / Drives 2013	Komax Germany	Nuremberg / DE

# CLOSE TO CUSTOMERS THE WORLD OVER

**Komax Wire has production plants in Switzerland, Germany, the United States and China and offers sales and service support in around 60 countries through its subsidiaries and independent agents.**

## Angola

- Komax Portuguesa  
PT-2785-034 S. Domingos  
de Rana  
Phone +351 21 444 8480  
Fax +351 21 444 8499  
miguel.peres@komaxgroup.com

## Argentina

- El Proveedor S.R.L.  
AR-Buenos Aires  
Phone +54 11 476 136 07  
Fax +54 11 476 136 07  
nmatus@elproveedoresrl.com.ar

## Australia

- Suba Engineering Pty. Ltd.  
AU-2200 Bankstown N.S.W.  
Phone +61 297 900 900  
Fax +61 297 083 040  
subasyd@suba.com.au

## Austria

- Thonauer GmbH  
AT-1230 Vienna  
Phone +43 1 804 28 710  
Fax +43 1 804 28 7110  
info@thonauer.at

## Belarus

- Asber  
BY-220018 Minsk  
Phone +375 17 258 1166  
Fax +375 17 258 2550  
info@asber.by

## Belgium

- Smans N.V.  
BE-2300 Turnhout  
Phone +32 1442 4401  
Fax +32 1442 6072  
info@smans.com

## Botswana

- Komtech  
ZA-4391 Salt Rock Ballito  
Phone +27 32 525 5155  
Fax +27 86 766 1572  
u.petry@komtech.co.za

## Brazil

- Komax Comercial  
do Brasil Ltda.  
BR-06440-110 Barueri/  
São Paulo  
Phone +55 11 3028 1112  
Fax +55 11 4689 1221  
andre.pedroni@komaxgroup.com

## Bulgaria

- Tekuni Eood  
BG-1415 Dragalevtsi  
Phone +359 897 761 159  
Fax +359 297 530 32  
info@tekuni.biz

## Canada

- Komax Corporation  
US-Buffalo Grove  
IL 60089-4507  
Phone +1 847 537 6640  
Fax +1 847 537 5751  
info.buf@komaxgroup.com

## China

- Komax Shanghai Co. Ltd.  
CN-201108 Shanghai  
Phone +86 21 2416 5668  
Fax +86 21 2416 5669  
marc.schuermann@komaxgroup.com  
sean.rong@komaxgroup.com

- Beijing Office  
Phone +86 10 5162 7825  
Fax +86 10 5278 6140

- Changchun Office  
Phone +86 431 8455 2252  
Fax +86 431 8455 2251

- Chendu Office  
Phone +86 28 8738 24 85  
Fax +86 28 8738 24 86

- Guangzhou Office  
Phone +86 20 2886 0648  
Fax +86 20 3878 0400

- Shandong Office  
Phone +86 631 5990 475  
Fax +86 631 5990 465

## Croatia

- Mikom D.O.O.  
HR-49247 Zlatar Bistrica Hrvatska  
Phone +385 49 462 034  
Fax +385 49 461 839  
mikom@mikom.hr

## Czech Republic

- Komax Deutschland GmbH  
DE-90449 Nürnberg  
Phone +49 911 32 49 50  
Fax +49 911 32 49 550  
matthias.klaus@komaxgroup.com

## Denmark

- Matech Systems ApS  
DK-7190 Billund  
Phone +45 75 33 89 49  
Fax +45 75 33 89 46  
info@matechsystems.dk

## Egypt

- Sigma Group Egypt  
EG-11361 Kairo  
Phone +202 2644 7245  
Fax +202 2642 3604  
info@sigma-g.com

## El Salvador

- Komax Service Office  
HN-San Pedro Sula  
Cortes Honduras  
Phone +1 9932 5200  
guillermo.lopez@komaxgroup.com

## Estonia

- Gammeter OU  
EE-76606 Keila  
Phone +372 671 22 52  
Fax +372 671 22 53  
info@gammeter.ee

## Finland

- Gammeter OY  
FI-33101 Tampere  
Phone +358 3380 2211  
Fax +358 3380 2244  
info@gammeter.fi

## France

- Komax France  
FR-93806 Epinay-sur-Seine  
Phone +33 14 940 1313  
Fax +33 14 940 1329  
denis.loizon@komaxgroup.com

## Germany

- Komax Deutschland GmbH  
DE-90449 Nürnberg  
Phone +49 911 32 49 50  
Fax +49 911 32 49 550  
matthias.klaus@komaxgroup.com

- ▲ SLE quality engineering  
GmbH & Co. KG  
DE-94481 Grafenau  
Phone +49 911 32 49 50  
Fax +49 911 32 49 550

- AAT Aston GmbH  
DE-90429 Nürnberg  
Phone +49 911 32 66 0  
Fax +49 911 32 66 299  
info@aston.de

## Great Britain

- KPE Ltd.  
GB-Hants SO31 5QA  
Phone +44 845 519 2418  
Fax +44 238 045 4675  
bthornton@kpeltd.co.uk

## Honduras

- Komax Service Office  
HN-San Pedro Sula  
Cortes Honduras  
Phone +1 9932 5200  
guillermo.lopez@komaxgroup.com

## Hungary

- Thonauer Kereskedelmi  
és Szerviz Kft.  
HU-1113 Budapest  
Phone +36 1372 7700  
Fax +36 1372 7709  
hungary@thonauer.net

## India

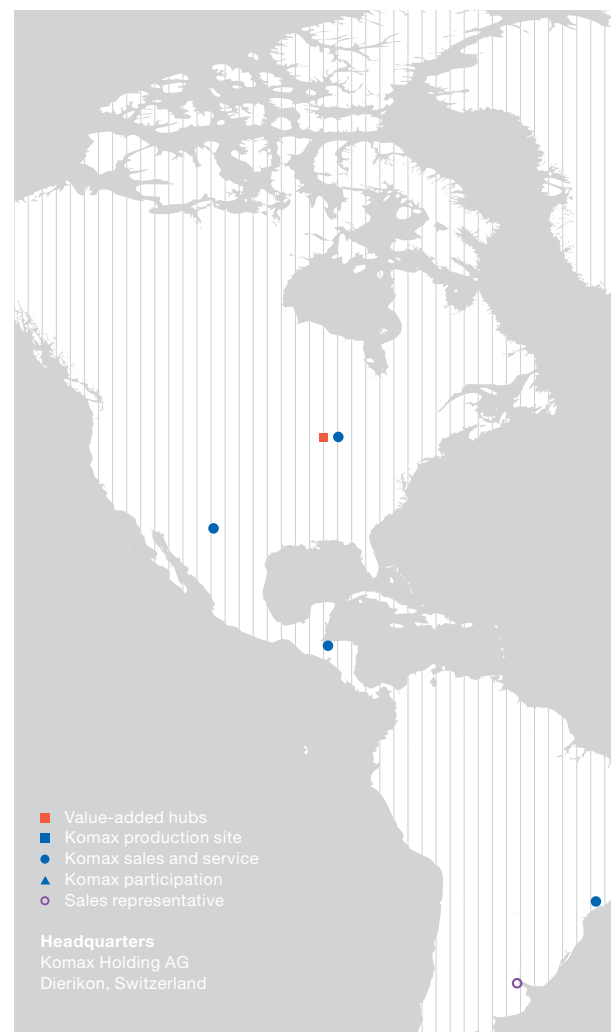
- Komax Automation  
India Pvt. Ltd.  
IN-122016 Gurgaon  
Phone +91 124 4599 100  
Fax +91 124 4599 101  
pradeep.kaura@komaxgroup.com

## Indonesia

- Komax Singapore Pte. Ltd.  
SG-368357 Singapore  
Phone +65 6285 9713  
Fax +65 6285 9714  
larry.wee@komaxgroup.com

## Ireland

- Kinetic Electronics Ltd.  
IE-Co. Offaly  
Phone +353 5793 21014  
Fax +353 5793 21014  
sean@kinetic.ie



**Headquarters**  
Komax Holding AG  
Dierikon, Switzerland

## Israel

- Tamir Engineering &  
Development Ltd.  
IL-49170 Petach-Tiqva  
Phone +972 3922 9422  
Fax +972 3922 9411  
tamireng@netvision.net.il

## Italy

- Cofilimacchine S.R.L.  
IT-20853 Blassono  
Phone +39 039 232 41 25  
Fax +39 039 232 21 45  
info@cofilimacchine.it

## Japan

- MCM Cosmic KK  
JP-Tokyo 191-0062  
Phone +81 42 582 7911  
Fax +81 42 582 7922  
john.woo@mcmcosmic.co.jp

## Korea

- Hansung Tech Co. Ltd.  
KR-463-828 Kyunggi-Do  
Phone +82 31 781 3971  
Fax +82 31 781 3975  
hiin@hansungtech.co.kr

## Latvia

- Gammeter OU  
EE-76606 Keila  
Phone +37 2671 2251  
Fax +37 2671 2253  
info@gammeter.ee

## Luxembourg

- Smans N.V.  
BE-2300 Turnhout  
Phone +32 1442 4401  
Fax +32 1442 6072  
info@smans.com

## Malaysia

- Komax KL  
MY-58000 Kuala Lumpur  
Phone +60 37981 2662  
Fax +60 37987 8662  
barron@pc.jaring.my

## Mexico

- Komax Corporation  
US-El Paso, TX 79936  
Phone +1 915 591 4551  
Fax +1 915 591 5868  
enrique.romero@komaxgroup.com

## Montenegro

- Mikom D.O.O.  
HR-49247 Zlatar Bistrica Hrvatska  
Phone +385 49 462 034  
Fax +385 49 461 839  
mikom@mikom.hr

## Morocco

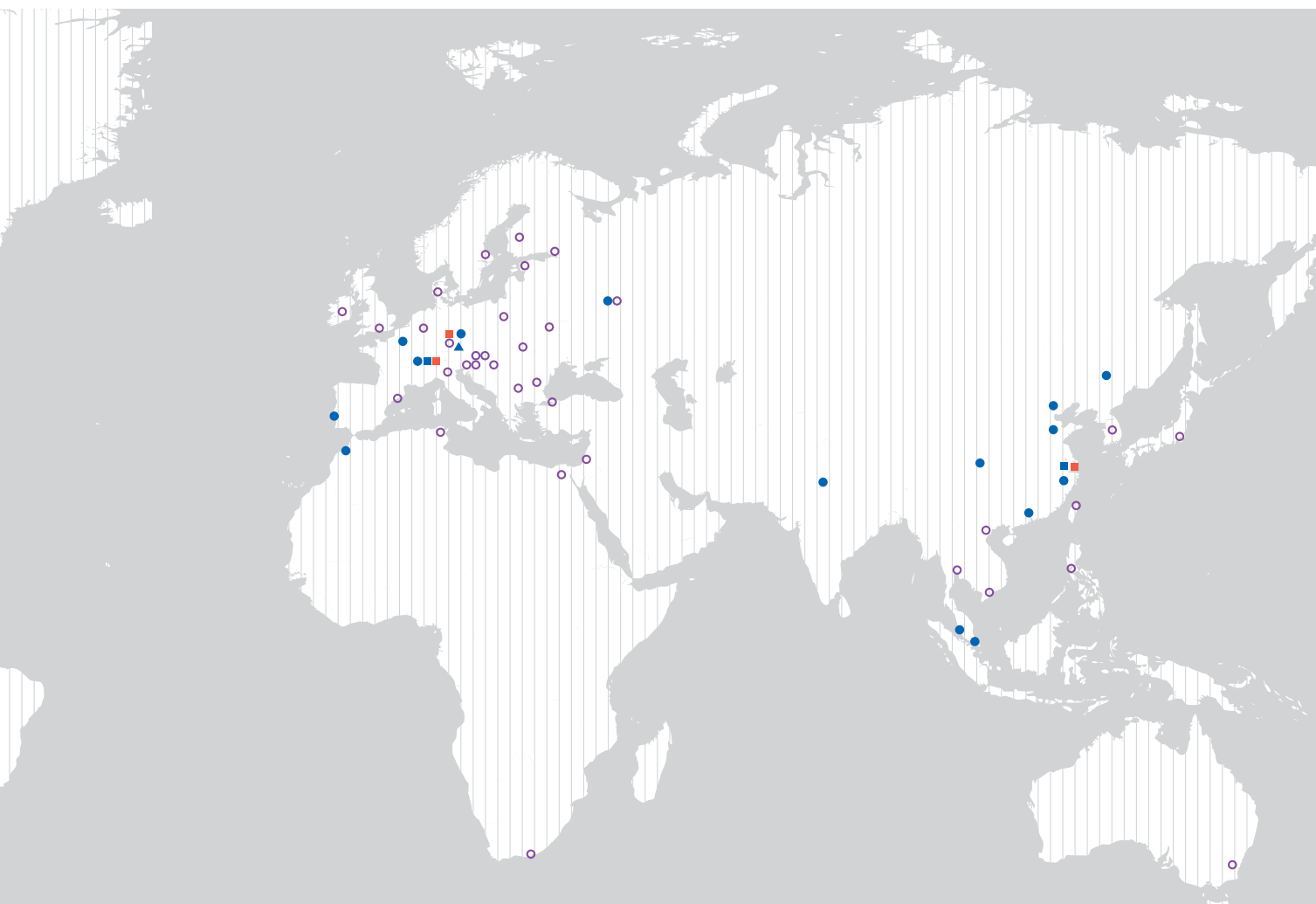
- Komax Maroc  
MA-20800 Mohammédia  
Phone +212 5 2330 5285  
Fax +212 5 2330 5173  
miguel.peres@komaxgroup.com

## Netherlands

- Smans N.V.  
BE-2300 Turnhout  
Phone +32 1442 4401  
Fax +32 1442 6072  
info@smans.com

## New Zealand

- Suba Engineering Pty. Ltd.  
AU-2200 Bankstown N.S.W.  
Phone +61 297 900 900  
Fax +61 297 083 040  
subasyd@suba.com.au



#### Nicaragua

- Komax Service Office  
HN-San Pedro Sula  
Cortes Honduras  
Phone +1 9932 5200  
Fax +1 9932 5200  
guillermo.lopez@komaxgroup.com

#### Norway

- Adcontact AB  
SE-17207 Sundbyberg  
Phone +46 8445 3600  
Fax +46 8445 3610  
info@adcontact.se

#### Philippines

- Neuttech Philippines Inc.  
PH-4027 Calamba Laguna  
Phone +63 49 545 4056  
Fax +63 49 545 4262  
jdcntech@pltdsl.net

#### Poland

- Evoltec  
PL-02-676 Warsaw  
Phone +48 22 550 27 40-44  
Fax +48 22 550 27 45  
tomasz.pawlowski@evoltec.pl

#### Portugal

- Komax Portuguesa  
PT-2785-034 S. Domingos de Rana  
Phone +351 21 444 8480  
Fax +351 21 444 8499  
miguel.peres@komaxgroup.com

#### Romania

- SC Thonauer Automatic S.R.L.  
RO-024011 Bucharest  
Phone +40 21335 1287  
Fax +40 21336 9534  
sales@thonauer.ro

#### Russia

- Ostec  
RU-121467 Moscow  
Phone +7 495 788 4444  
Fax +7 495 788 4442  
golubyev.a@ostec-group.ru

- Ostec  
RU-195009 St. Petersburg  
Phone +7 911 849 7986  
Fax +7 495 788 4442  
eugene.belov@ostec-group.ru

- Komax Moscow  
RU-125190 Moscow  
Phone +7 495 221 2943  
Fax +7 495 363 5532  
info.rus@komaxgroup.com

#### Serbia

- Mikom Electronic D.O.O.  
SRB-34210 Raca  
Phone +381 34 752 760  
Fax +381 34 752 760  
mikom@mikom.hr

#### Singapore

- Komax Singapore Pte. Ltd.  
SG-368357 Singapore  
Phone +65 6285 9713  
Fax +65 6285 9714  
larry.wee@komaxgroup.com

#### Slovakia

- Thonauer SPOL S.R.O.  
SK-81339 Bratislava  
Phone +421 2527 33664  
Fax +421 2527 33665  
info@thonauer.sk

#### Slovenia

- Mikom-si D.O.O.  
SI-3320 Velenje  
Phone +386 3 8919 310  
Fax +386 3 8919 311  
mikom-si@siol.net

#### South Africa

- Komtech  
ZA-4391 Salt Rock Ballito  
Phone +27 32 525 5155  
Fax +27 86 766 1572  
u.petry@komtech.co.za

#### Spain

- Estanflux S.A.  
ES-08023 Barcelona  
Phone +34 9 3351 6151  
Fax +34 9 3352 3845  
comercial@estanflux.es  
sat@estanflux.com

#### Sweden

- Adcontact AB  
SE-17207 Sundbyberg  
Phone +46 8445 3600  
Fax +46 8445 3610  
info@adcontact.se

#### Switzerland

- Komax AG  
CH-6036 Dierikon  
Phone +41 41 455 04 55  
Fax +41 41 450 42 66  
info.din@komaxgroup.com

#### Komax AG

- CH-6343 Rotkreuz  
Phone +41 41 799 45 00  
Fax +41 41 799 45 01  
info.rok@komaxgroup.com

#### Taiwan

- Chain Year Industr. Corp.  
RC-221 Taipei Hsien  
Phone +886 22 691 3568  
Fax +886 22 691 3586  
sales@chainyear.com.tw

#### Thailand

- DKSH (Thailand) Ltd.  
TH-10310 Bangkok  
Phone +66 2254 4900 1696  
Fax +66 2652 9417  
weilun.tsao@dksh.com

#### Tunisia

- Reemi  
TN-2000 Le Bardo  
Phone +216 71 222 811  
Fax +216 71 519 913  
reemi@planet.tn

#### Turkey

- Unitek Elektrik San. Ve Tic.  
Ltd. Sti.  
TR-34852 Maltepe – Istanbul  
Phone +90 216 518 9440  
Fax +90 216 518 9436  
info@unitek-elektrik.com

#### Ukraine

- Wireworks  
UA-79015 Lviv  
Phone +38 067 673 0314  
Fax +38 032 245 1193  
andriy.tytomyr@wireworksua.com

#### United Arab Emirates

- Contax Automation Ltd.  
GB-London, W5 3BU  
Phone +44 208 354 3323  
Fax +44 208 9988 771  
morteza@contaxautomation.com

#### Uzbekistan

- Ostec  
RU-121467 Moscow  
Phone +7 495 788 4444  
Fax +7 495 788 4442  
golubyev.a@ostec-group.ru

#### USA

- Komax Corporation  
US-Buffalo Grove  
IL 60089-4507  
Phone +1 847 537 6640  
Fax +1 847 537 5751  
info.buf@komaxgroup.com

#### Vietnam

- Ho Chi Minh Office  
DKSH Technology Co. Ltd.  
VN-Ho Chi Minh City  
Phone +84 38 125 806  
Fax +84 38 125 807  
ngoc.thihong.vu@dksh.com

#### Hanoi Office

- DKSH Technology Co. Ltd.  
VN-Hanoi  
Phone +84 34 9424 725  
Fax +84 34 9424 730  
huu.viet.nguyen@dksh.com

#### All other countries

- Komax AG  
CH-6036 Dierikon  
Phone +41 41 455 04 55  
Fax +41 41 450 42 66  
info.din@komaxgroup.com

**Komax AG**

Industriestrasse 6  
CH-6036 Dierikon  
Switzerland

**Phone +41 41 455 04 55**  
**[www.komaxwire.com](http://www.komaxwire.com)**

