

Technical Data Sheet KASTOflex F

10/08

Cutting range:

With saw blade diameter 450 mm

	Round	Flat (width x height)	Square (width x height)	
Cutting range 90°	Ø 150	200 x 100	140 x 140	mm
Cutting range 45°	Ø 145	160 x 80	120 x 120	mm
Cutting range 60°	Ø 115	120 x 60	100 x 100	mm

Minimum material height with flat material	8	mm
Remnant length in automatic cycle at 90°	35	mm
Remnant length in automatic cycle at 45°	95	mm

Dimensions and weight:

Length approx.	4800	mm
Width approx.	1500	mm
Height approx.	1900	mm
Material support height approx.	1050	mm
Weight of machine approx.	2500	kg

Performance characteristics:

Total connected load	8	kW
Connected load of coolant pump	0.1	kW
Frequency regulated drive (option)	4.0	kW
Pole changing cutting speed	12/24	m/min
Infinitely variable cutting speed	10 – 60	m/min
Direct entry of measures up to	9999	mm
Max. tolerance of straightness	12	mm/6 m
Material feed length, individual cut at 90°	2030	mm
Material feed length, individual cut at 45° approx.	1970	mm
Saw feed speed range	16 – 520	mm/min
Rapid return of the saw blade	2000	mm/min
Material feed speed	0 – 20	m/min
Max. clamping power of material feed vice	12500	N
Max. clamping power of vertical vice	25000	N
Reducible clamping power (option)		
Diameter of saw blade, special flange	Ø 350	mm
Reception boring according to DIN 8576	40/4 x 11/63	mm
Diameter of saw blade	Ø 400, Ø 450	mm
Reception boring according to DIN 8576 with intermediate ring	50/4 x 14/80	mm

Coolant:	Flow rate of coolant pump 40 l/min
Mains voltage:	In accordance with EN 60204 400 V three-phase current (-10 %, +6 %) Control voltage 24 V-DC The customer will be notified of the connection value in kVA after the scope of supply has been finalized. On request other voltages for an extra charge
Mains frequency:	50 Hz (-1 %, +1 %; transient -2 %, +2 %)
Type of mains:	TN mains according to IEC 364/VDE 0100 The power is supplied from the mains to the switching cabinets including advance fusing by the customer. The position of the switch cabinet is to be seen from the layout.
Protective measures against indirect contact:	Over-current protector (zero balancing). The mains supply of the operator (size and characteristic of the main fuse selected as well as the total impedance of PE and outer conductor in the supply line to the machine) has to be designed in such a way that the permissible shutdown time in the event of an error is not exceeded. The use of a differential current switch in the mains incoming supply is not permitted.
Safety requirements:	The offered machine corresponds with the valid safety requirements according to DIN EN ISO 12100-1, DIN EN ISO 12100-2
Painting:	Machine RAL 7035, light grey, structural painting
Delivery terms:	Possibly valid company's own operating material regulations have not been taken into consideration when working out the offer, unless they are specifically mentioned in the quotation. The machine will be equipped with proven components selected by KASTO. If you insist on the observance of your operating material regulations we kindly ask you to make these regulations available to us for working out the appropriate offer. After placing the order, any specifications can no longer be considered. This is also valid for so called fire protection regulations.

Description of Machine

Pos. 1000 KASTOflex F

Flexible, fully automatic circular sawing machine for mitre cutting for automatic bar reload and cut-off sorting devices (option). Cut-off pieces are discharged separately from trim cuts, intermediate parts and remnants (option). Suitable for fully automatic cutting of tubes, profiles and solids for small to medium numbers of cuts, different cut-off lengths and mitre cutting on both sides.

Machine Tool Table

Vibration damped steel construction, equipped with chip drawer, prepared for later mounting of a chip conveyor (option).
Large safety door with safety lock for tool change.

Saw Unit

Mounted below the rotating table, four-stage helical cylindrical gearing with hardened and ground toothed wheels, running in an oil bath. Infinitely variable cutting speed, frequency regulated.

NC Rotating Table

Automatic swivelling range 120°, from left 30° to right 30°.
Easy rotational movement by means of four-point complete roller bearing.
Plasma-nitride table surface, resistant to wear.

Constant Saw Feed

Infinitely variable constant feed with hydraulic control.
No change of saw blade (no set-up times) in mixed operation (profiles/solids).
This reduces storing of different saw blades.
Longer blade life by reason of constant chip removal when cutting profiles or solids.
Adjustment of the descent of the saw blade below the table by entering the saw blade diameter in the tool data.

Device for Mounting of Saw Blade and Clamping of Saw Blade

KASTO standard flange with central fastening screw according to DIN standard device 50/80/4 x 14. By unscrewing the central screw the saw blade flange is pulled off at the same time. With this flange, saw blades with 400 mm and 425 mm Ø can be clamped. For saw blade diameter 350 mm an additional saw blade flange is necessary (option).

Cleaning of the Saw Blade

By pin or roller chip removing wheel

Removal of Chips

by chip drawer (standard) or chip conveyor (option)

Workpiece Stop

Immobile and in ideal position with regard to the centre of motion of the saw blade. The stop plates don't need to be adjusted with cutting angle up to 60° on both sides.

Material Clamping

Safe material clamping by means of hydraulic vertical and horizontal vice. Clamping on both sides at the cutting spot.

Material Feed

Guide via linear guide units with backlash-free guide carriages.
Positioning via recirculating ball screw drive, direct numeric length measurement.
Noncontact return stroke by vice lifting movement on both sides.
Feed length in one stroke at 90° 2030 mm, at 45° 1970 mm.
Remnant length in automatic cycle at mitre cutting 95°,
remnant length with exchangeable clamping jaw in automatic cycle at 90° 35 mm.
Repeating accuracy of material feed ± 0.1 mm.

The cutting accuracy depends on the admissible cutting parameters and on the perfect condition of saw blades.

Pushing Device for Cut-off Pieces

Swing-back pusher to remove cut-off pieces and trim cuts as well as remnants and intermediate pieces from the saw table onto continuing roller conveyors or sorting devices (roller conveyors and sorting devices = option).
Separation of good parts and scrap.

KASTO Control for Sawing Machines *EasyControl*

- Control by PC, based on an industrial panel without fixed disk, with 10“ colour touch display
- Operating system Windows CE
- Integrated soft-PLC (programming language STEP 7) with field bus interface Profibus DP
- Network interface Ethernet TCP/IP
- Operation, menu control and machine operation (set-up) via touch screen
- System visualization, system diagnosis for all operating conditions, error message in clear text
- Online language selectable between German and customer's language (other languages and character sets other than Latin optional)

Job management and material management via data base function

- Automatic allocation of cutting technology for the appropriate material qualities according to DIN names or “Key to steel” and according to the saw blades (HSS or carbide) used. This means technological prompting for optimal cutting results and cutting times.
- Memory for up to 500 material master data records (alphanumerical material ID number). Can be expanded at extra charge.
- Job memory to enter up to 200 combinations of length, angle and number of pieces. Diagram for entry of cutting angles. Original measurement entry for multiple feed. Jobs in process can be corrected in regard to cut-off length, required number of pieces and sorting position. Can be expanded at extra charge.
- Job entry either in predetermined sequence or sorted according to material ID and cut-off length with automatic job sorting. Preselection between trim cut or immediate production cut at time of material change.
- Inserting urgent jobs into the existing program sequence at a later time is possible.
- Automatic calculation of the required amount of material needed for each cutting job or – when entering raw bar length – possible numbers per material bar.
- KASTO optimization for remnants for best possible material utilization on basis of the remaining remnant length
- Display of operating conditions for each cutting job during operation
- Possibility to delete individual jobs, finished jobs or the complete job memory during operation, except in the active block of cutting jobs
- Control for KASTO infeed units with possibility to supply different or equal material dimensions
- Supervision of coolant quantity by FlowControl. If coolant output gets too low, the machine stops automatically.

The KASTO control system allows fast, easy and reliable operation of machines.

Scope of Supply

Control for sawing machines *EasyControl*

Pushing device for cut-off pieces

Frequency-regulated drive motor, cutting speed infinitely variable 10 – 60 m/min

Standard cutting speeds 12/24 m/min

Chip remover

Solid steel saw blade Ø 400 x 4, 92 teeth

Integrated coolant tank with coolant pump

Flange for mounting of saw blade with integrated central fastening screw

Removable chip tub with sieve

Complete set of tools for saw blade change

1 instruction manual according to DIN EN ISO 12100, see delivery terms

Description of Accessories for KASTOflex F

The prices of the available equipment only apply to delivery together with the corresponding machine. The prices for accessories that shall be retrofitted have to be inquired separately.

Pos. 1300 Special voltage

Price on request

Pos. 1350 Special painting

Special structural painting of complete machine
Price and delivery period on request

Complementary Equipment for the Control System

Pos. 2020 KASTO control for sawing machines *TechnoControl*

Necessary for machines equipped with: Cross sorting system
Marking device for cut-off pieces
Robot handling systems
Integration into a KASTOcenter

Control by industrial PC with TFT colour flat screen 15", alphanumeric keyboard, function keys and CD-ROM drive

Operating system Windows XP

Integrated soft-PLC (programming language STEP 7) with interface "Profibus DP"

Operation and menu control by function keys, suitable for workshops

Operation of machine (alignment) by direction keys integrated into the control unit

Visualization of the installation, diagnosis for all operating states of the installation, error message in plain text

Online change of language between German and customer's language (further languages and character sets differing from Latin as option)

Job management and material management by database functionality

Automatic allocation of cutting technology for the appropriate material qualities according to DIN names or "Key to steel" and according to the saw

blades (HSS or carbide) used. This means technological prompting for optimal cutting results and cutting times.

Memory for up to 2000 material master data records (alphanumerical material ID numbers). Can be expanded at extra charge.

Job memory to enter up to 1000 combinations of length, angle and number of pieces with diagram of cutting angles. Can be expanded at extra charge. Original measurement entry (the total length) for multiple feed. Jobs in process can be corrected with regard to cut-off length, required number of pieces and sorting position.

Job processing either in predetermined sequence or sorted according to material ID and cut-off length with automatic job sorting. Preselection between trim cut or immediate production cut at time of material change. Inserting urgent jobs into the existing program sequence at a later time is possible.

Automatic calculation of the required amount of material needed for each cutting job or – when entering raw bar length – possible numbers per material bar.

KASTO optimization for remnants for best possible material utilization on basis of the automatically measured remnant length

Display of operating conditions for each cutting job during operation

Possibility to delete individual jobs, finished jobs or the complete job memory during operation, except in the active block of cutting jobs.

Registration of time and data for:

- Cutting time per cut
- Processing time per job
- Cutting time per saw blade
- Cutting performance in cm² per minute
- Cutting area per saw blade in cm²
- Operating hours of system in automatic operation
- Operating hours of system

Serial interface Ethernet TCP

Control for KASTO infeed units to store different or identical material bars

Automatic material infeed via powered machine roller conveyor

Automatic discharge of remnants (not available for machines with inclined magazine), remnants longer than 1000 mm are restored automatically. Remnants shorter than 1000 mm are discharged into the remnant container, remnant length at automatic bar change $\leq 35/95$ mm.

Supervision of coolant quantity by *FlowControl*. If coolant output gets too low, the machine stops automatically.

With carbide use, saw blade cooling via micro-spray lubrication system with level control

Operation: All operating elements are arranged ergonomically at the front side of the machine in the swivelling control panel.

Pos. 2021 Job input via PC keyboard
(for KASTO *TechnoControl* only)

PC keyboard and enlarged control cabinet to simplify input of material data and job data

Pos. 2030 Data security on USB-stick

Possibility to memorize material data and job data on USB-stick (incl. USB-stick with 128 MB data memory)

Pos. 2031 Job input via USB-stick
(for KASTO *EasyControl* and *TechnoControl*)

Read in of cutting jobs into the control by means of USB-stick.
The jobs can be prepared at any PC (e.g. EXCEL) and saved in csv-format to the USB-stick.
The cutting jobs are down-loaded from the USB-stick to the control.
Part of the delivery range is an example file with the formatting necessary for the job transfer.
With this option it is as well possible to compare the material designation and the material number between PC and machine control.

Pos. 2032 Host interface and coupling to KASTO *EasyControl/TechnoControl*

Interface software (at control) to connect the control via Ethernet TCP/IP to a higher-ranking computer system or to KASTO software „*TechnoControl remote*“ in accordance with KASTO interface description. It contains three days phone service, further phone service upon expenditure.

Pos. 2034 Remote diagnosis via modem after warranty period

- Remote diagnosis for PC and integrated PLC through ISDN modem (integrated into PC). A free ISDN connection with data line must be provided by the customer.
- Fast, reliable and reasonably priced support of the operating and service personnel by KASTO service

- Short downtimes thanks to easy remote diagnosis
- Using PC Anywhere the KASTO service headquarters can control all functions by remote, such as visualization, job control, diagnosis etc.
- With the routing function, the KASTO service headquarters can access the PLC control system through the PLC programming software STEP 7.
- Program and parameter changes as well as additional functions for PC and PLC can be retrofitted at a reasonable price.

Pos. 2035 Tool management

Integrated tool management for saw blades

- Clear identification of each tool by allocation of ID number
- The saw blade usage (in mm² and minutes) is stored per blade and activated with every blade change.
- Resumption of cutting surface/cutting time when using the same tool again. The functional parameters (e.g. no new running-in for carbide blades etc.) are taken into account.

Pos. 2040 Drawing up order lists

(for KASTO *EasyControl* and *TechnoControl*)

Drawing up, storing and fetching order lists, as a summary of several cutting jobs for one basic material, e.g. for several different cut-off pieces which belong to one drawing number, article or similar.

Function:

Input of all cutting jobs (number of pieces, cut-off length, mitre cut angle) for one drawing number, one product or similar into the order memory of the control. The orders which have to be allocated to one order list have to be marked. The order list is to be saved under the requested name, e.g. a drawing number. If required, the order list can be fetched under the saved name into the order memory of the control.

Pos. 2060 Heating for switch cabinet

If the machine is installed in cold facilities we recommend to use a heating for switch cabinet, controlled by thermostat.

Pos. 2061 Heating for control unit

If the machine is installed in cold facilities we recommend to use a heating for the control unit, controlled by thermostat.

Pos. 2065 Air Conditioner for switch cabinet

Installed at switch cabinet door for machine operation with outside temperatures up to 45 °C. Coolant capacity 1040 W at an ambient temperature of 55 °C

Protection: Outside circuit IP 34
Inside circuit IP 54

Dimensions: H x W x D 400 x 650 x 425 mm

Pos. 2210 Halogen machine lamp 24 Volt

Pos. 2216 Illumination for interior of machine tool table

Pos. 2218 Signal lamp

3 colours, mounted on top of the switch gear cabinet

Green = automatic cycling

Red (intermittent) = malfunction

Orange (intermittent) = preselected number of cuts reached – surveillance of saw blade service life

Complementary Equipment for the Machine

Pos. 3000 KASTO chip conveyor

Ejection height 620 mm

Pos. 3010 Oil tray made of steel

for machine

Pos. 3015 Oil tray made of stainless steel

for machine

Pos. 3320 Flange for saw blade

With 350 mm Ø (DIN standard device 40/63/4 x 11)

Pos. 3340 Heating for hydraulic oil

If the machine is installed in cold facilities we recommend to use a heating for hydraulic oil, controlled by thermostat.

Pos. 3350 Coolant unit for hydraulic system

For outside temperatures higher than 45 °C, installed at hydraulic system of machine

Pos. 3370 Micro-spray lubrication system

For coolants and lubricants with automatic monitoring. Recommended for cutting of tubes and profiles. The standard flood coolant device remains unchanged. Incl. 3 l spray coolant. Working pressure at least 5 bar. Waterless and dustless air supply by customer.

Pos. 3372 Compressor to supply the machine with compressed air

220 V, 50 Hz, motor power 1.3 kW, filling capacity 260 l/min, 8 bar, boiler contents 24 l

Pos. 3391 Programmable clamping power regulation

The admissible clamping pressure of machine and pulling vice to clamp tubes and profiles can be assigned continuously and stored in the material master data.

For thin-walled profiles and tubes interlocking clamping jaws may be necessary.

Adjustment range: min. 25 bar – max. 70 bar

Pos. 3971 Movable chip container with lifting truck

With drop off plate as well as drain cock for coolant

Complementary Equipment for Infeed and Outfeed Periphery

Pos. 4322 Cover plates

For roller conveyors Pos. 4325 and 4326

Pos. 4325 Roller conveyor

1060 mm long, equipped with 5 rollers Ø 50 mm, width of roller conveyor 470 mm, usable width 380 mm, distances between roller centres 2 x 152 mm and 2 x 304 mm, carrying capacity 250 kg/m

Pos. 4326 Roller conveyor

As Pos. 4325 but with 4 lateral guiding rollers

Pos. 4332 Cover plates

For roller conveyors Pos. 4335 and 4336

Pos. 4335 Roller conveyor

2130 mm long, equipped with 8 rollers Ø 50 mm, width of roller conveyor 470 mm, usable width 380 mm, distances between roller centres 2 x 152 mm, 4 x 304 mm and 1 x 456 mm, carrying capacity 250 kg/m

Pos. 4336 Roller conveyor

As Pos. 4335 but with 8 lateral guiding rollers

Pos. 4346 Pre-loading rack

Pre-loading depth 1000 mm, carrying capacity 350 kg

Pos. 4351 Inclined magazine for round material 6000 mm

Exclusively for huge order quantities of round materials and tubes

For automatic supply of bars, mainly round materials of same dimension and quality.

Consisting of 5 material supporting stanchions for the supply of material bars. Adjustment of separation cams according to the material diameter by means of handwheel with digital display.

Manual adjustment of inclination of material supply area.

Magazine roller conveyor equipped with frequency-controlled, motor-driven transport roller conveyor, transport speed is synchronous to the feed gripper. Four additional non-driven rollers at the end of the roller conveyor for material support.

Remnants from 95 mm are discharged in the cut-off sorting area. Restoring into the magazine area is not possible.

Material dimensions	Ø 15 – 150	mm
Initial length of material	1500 – 6000	mm
Admissible material unevenness at a length of 6000 mm	12	mm
Pre-storing width approx.	1000	mm
Carrying capacity	3000	kg
Total weight	2000	kg

Pos. 5000 Customized Accessories if Required

Infeed and Outfeed Periphery for Extended Unmanned Operation

Pos. 6290 Universal Magazine

For fully automatic working of cutting jobs of small to medium batch sizes.

To store and feed automatically material bars with different cross-sections, qualities and forms. Lateral transport with load carrying roller chain which requires minimum energy.

Damage-free lateral transport via walking chains onto infeed magazine. Drive via sprockets.

Lateral transport power sufficient for magazine load up to full carrying capacity of 3000 kg. Magazine roller conveyor equipped with frequency controlled transport rollers, transport speed synchronized with feed vice.

Material dimensions	10 – 200	mm
Initial lengths of material	1000 – 6000	mm
Number of buffer compartments incl. 1 roller conveyor compartment	10	
Carrying capacity	3000	kg
Admissible material unevenness at a length of 6000 mm	12	mm
Weight approx.	5000	kg

Pos. 6690 Tilting roller conveyor for cut-off pieces

2000 mm long, with two positions for separate sorting of cut-off pieces, trim cuts, intermediate parts and remnants. The pushing device pushes the cut-off pieces in material flow direction onto this roller conveyor from where they are tilted to the left or to the right.

Pos. 6691 Elongation of the tilting roller conveyor per 1000 mm

Pos. 6700 Sorting belt conveyor for cut-off pieces

2000 mm long, to sort cut-off pieces into different containers and to discharge trim cuts, intermediate parts and remnants. The pushing device pushes the cut-off pieces in material flow direction onto this sorting belt conveyor on which they are transported (in distances of 500 mm) to the requested position and tilted to the left or to the right.

Pos. 6701 Elongation of the sorting belt conveyor per 1000 mm, max. 6000 mm**Pos. 6710 Programmable cross sorting device**
(for KASTO *TechnoControl* only)

With hydraulically lifting and lowering sorting scoops for a low-noise sorting off of cut-off pieces onto the bottom of the material container or onto the already deposited material in the container, with small containers up to the container edge, laying down upon sensor release.

Cut-off lengths up to	1200	mm
Max. weight per cut-off	150	kg
Travel speed, frequency-controlled	0 – 30	m/min
Basic equipment of sorting distance	4000	mm
Sorting positions	12	units
Max. container height	750	mm

Incl. safety fence with an opening up front of approx. 800 mm high for the supply with lifting device or fork lift. Due to this device 2 m of sorting distance are dropped. Sorting length at basic machine 1800 mm. The sorting positions 1, 2 and remnants of standard sorting remain.

Pos. 6900 Safety devices as per scope of supply

Price upon enquiry!

Consumables**Pos. 7010 Pin chip remover for tooth pitch 11 – 12 mm****Pos. 7011 Pin chip remover for tooth pitch 12 – 13 mm****Pos. 7012 Pin chip remover for tooth pitch 14 – 15 mm**

Pos. 7013 Pin chip remover for tooth pitch 15 – 16 mm

Pos. 7021 Replacement aluminium jaw for vertical vice

Pos. 7100 KASTO cooling lubricant, 3 l, for Pos. 3370

Pos. 7101 KASTO cooling lubricant, 10 l, for Pos. 3370

Pos. 7102 KASTO cooling lubricant, 30 l, for Pos. 3370

KASTO high-performance coolant concentrate (free from chlorine)

Pos. 7110 Water soluble, 5 kg

Pos. 7111 Water soluble, 20 kg