HAIMER®
Quality Wins.

MICROSET

ツールプリセッタ

TOOL PRESETTERS





100%
MADE IN
GERMANY
MADE BY HAIMER

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測定とプリセット技術

PRESETTING TECHNOLOGY



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HAIMER社マイクロセット・プリセッタを使う10の理由

Top 10 Reasons to use HAIMER Microset Presetting Technology

1

機械稼働率の改善

70%以上段取り時間を改善し、機械稼働時間を 大幅に増やす。

Increased Machine Utilization

Reducing set-up time by as much as 70% or more translates to more machine “up-time” and productivity.

2

迅速な段取り替え

段取り替えが機上で行われる場合、手動でする 場合、またはレーザーを使ってする場合に比べ はるかに速くできる。

Faster Set-ups

Even if set-ups are not being performed offline, using a tool presetter is significantly faster than setting tools in the machine manually or with a laser.

3

オシャカを減らす

マイクロセットプリセッタは、測定に光学式カメラを使用しており、手動による接触式と比較して高い精度を実現しています。オートフォーカスや自動測定などのオプションにより、オペレータに関係なく、測定の誤差をさらに減らすことができる。

Reduced Scrap

Microset presetters use optical cameras for measurement, which provide higher degrees of accuracy versus manual setting methods. Options like automatic focusing and measuring further reduce deviations in measurement, regardless of the operator.

4

工具寿命の延長

往々にして不可能だった振れ精度の測定入力が簡単にできるため、精度の悪い工具を機上から省くことにより工具寿命が延長される。

Longer Tool Life

Runout that is not often inspected for non-critical assemblies can be measured and accounted for easily with a presetter, thereby extending tool life by preventing inaccurate tools from ever entering the machine.

5

衝突の減少

RFIDやポストプロセッサを使うことにより手動オフセット入力を無くす。オペレータによる間違い入力を無くすことで、ツールの衝突を減らす。

Fewer Collisions

With optional data transmission methods like post-processing or RFID, the manual entry of offsets into the machine can be eliminated. This reduces errors that occur from operators accidently mistyping offset values.

6

レーザー方式より費用対効果に優れる

機械は切粉を出している間が利益を生み測定に使うときはそうではない。しかも一台のツールプリセッターでは10－30台の機械に対処でき、一台一台にレーザーを取り付けるよりコスト対効果に優れている。

More Cost-Effective than Lasers

Machines make money when they are making chips and not being used as measuring devices. Furthermore, one presetter can manage 10–30 machines which is more cost-effective than purchasing a laser for each machine.

7

安定性

工具が正しくセットされているか、それぞれ公差内に入っているか、毎回確認可能。

Consistency

Confirmation that tools are set properly, within specified tolerances, every time.

8

使いやすさ

ソフトがわかりやすく使いやすいので誰でも問題なく操作できるし、特別な資格や技術を修めなくても使用できる。

Ease of use

Simple software makes the process as easy as possible for all users.
No software engineering degrees needed!

9

汎用性

簡単なミーリング工具、調整式ボーリングヘッド、複雑な多刃ミーリングヘッド、成形PCD工具、段付きドリル、あらゆる工具とあらゆるメーカーに対応できる簡単便利ソフト。

Universal

Easy to preset milling tools, adjustable boring heads, complex multi-inserted face-mills, PCD form tools, step-drills, etc. from all makes and manufacturers.

10

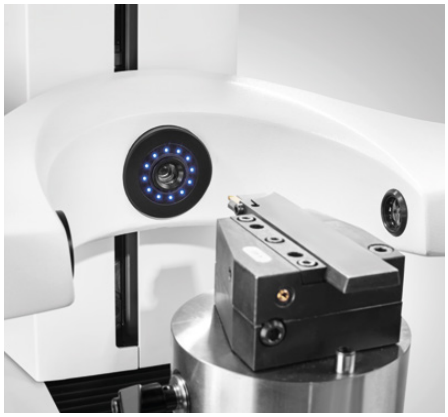
Industry4.0化の成功

インダストリー4.0とは集めたデータを加工中に変更し加工プロセスを最適化すること。これからのスマートファクトリーではこのようなデータを受信転送できる技術が必要になり、今ハイマー社の現在のプリセッターでこれが可能となった。

Industry 4.0 success

Industry 4.0 is all about using gathered data to automate changes on the fly that optimize the machining process. The future smart factory will require technologies that can receive and transmit such data. HAIMER Microset tool presetters are able to communicate with a variety of machine controls, CAD/CAM systems and tool management systems.

精度と生産性
Precision and productivity in production



プリセット、シュリンク、バランス、検査と測定に対し、HAIMER社はあらゆるサイズのツールと機械に適した完璧なソリューションを提供します。HAIMER社のノウハウと豊富な製品群により加工物の品質と精度を高めます。

Whether presetting, shrinking, balancing or inspecting and measuring – we offer the perfect solution for all tool sizes and work environments. Improve the quality and precision of your work pieces with our know-how and wide range of products.



UNO シリーズ – 手軽さと高機能を両立
UNO series – unique high-tech features in entry level tool presetters.

時間とコストを節約し、加工物の品質を高める
Save time and money, improve work piece quality

Haimer Microset社がお届けする高性能プリセット装置は貴社の加工工程を完璧に最適化します。これにより工具寿命が延び、加工面精度が改善し貴社の生産工程の信頼性を大幅に改善できます。

- 機械のアイドルタイムを最小限に抑えます
- 不良品を無くしツールのコストを抑えます
- 生産工程の信頼性を高めます
- 工具寿命を改善します
- 製品の品質が安定します

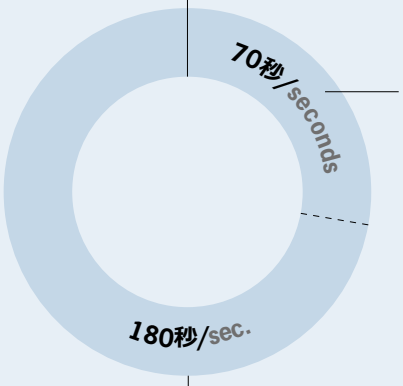
The efficient tool presetting equipment from HAIMER Microset optimizes your machining processes from the ground up. Improve your tool life, achieve better surface finishes and boost overall process reliability in your production. Minimise the idle time of your machines.

- Minimize the downtime of your machine
- Reduce scrap and tooling costs
- Increase process reliability in your production
- Improve your tool life
- Generate consistent quality in your products

段取り時間を最大70%縮めます!
Reduce up to 70 % of your setup time!

ツールプリセット無しの段取り時間 –
合計時間250秒

Setup time without tool presetting –
total time of 250 seconds



補正値入力、ドリル下穴の測定、工具をマシンにクランプする

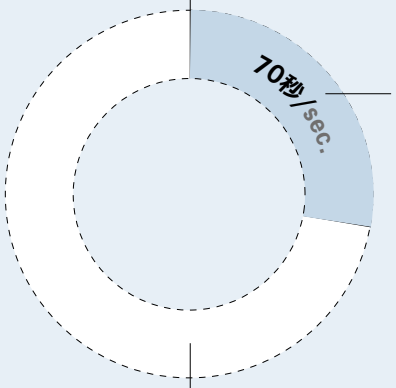
Enter correction value, measure hole, clamp tool

仕上げボーリング加工工程前のドリル下穴径/深さ測定、補正値の計算、最終刃具調整

Bore the diameter and length of the hole, measure the depth and diameter of the hole, calculate correction, adjust tool

ツールプリセット有りの段取り時間 –
合計時間70秒

Setup time with tool presetting –
total time of 70 seconds



補正値入力、ドリル下穴の測定、工具をマシンにクランプする

Enter correction value, measure hole, clamp tool

段取り時間の短縮
以下の作業を削減できます：仕上げボーリング加工工程前のドリル下穴径/深さ測定、補正値の計算、最終刃具調整

Setup time reduction
Avoided: Bore the diameter and length of the hole, measure the depth and diameter of the hole, calculate correction, adjust tool

UNO シリーズ – 使いやすく高精度オプション付きのエントリーモデル / UNO series – entry level tool presetters include high-tech options as standard



精度、スピード、信頼性に加えてUNOシリーズはハードウェアに多数の機能を備えております。最新のデザインと更に進歩した人間工学 により新たな基準が生まれました。Festo、SMC、Bosch、Heidenhain、IDSなどの高品質な構成部品を使用しています。

In addition to its precision, speed and reliability, the UNO series also includes numerous features in hardware. The new design and improved ergonomics set the standard by using high-quality components from Festo/SMC, Bosch Rexroth/THK, Heidenhain, and IDS.

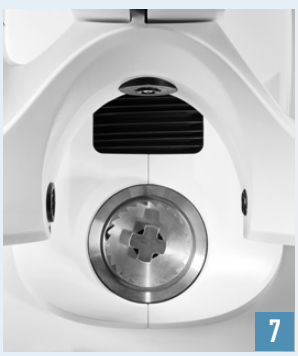














1 旋削バイトの芯高調整用第二カメラ/Camera system for setting the centre of rotation
2 ダイヤルゲージによる旋削バイトの芯高調整/Tactile measurement of the centre of rotation
3 タッチ&リリース操作機能により、ボタンを使用しない簡単操作を実現
Release-by-touch function, easy to operate without buttons
4 3つの引き出し、1つの扉とオイルトレイを装備した便利なシステムキャビネット。
すべての側面にメンテナンスドア付き。
Useful system cabinet with 3 drawers, 1 door and internal oil tray. Also includes 3 maintenance doors (on all sides)
5 キーパッド及び無段階調整ダイヤル機能/Keypad and µm-precise adjustment
6 150°水平可動式ツールストレージ/150° swivelling adapter storage
7+8 スナップゲージ方式測定で最大径100mmの工具径測定に対応
Measuring based on the snap gauge principle for diameters up to 100 mm

UNO オートフォーカス&オートマチックドライブ – 効率と精度の両立
UNO autofocus & automatic drive – efficient and precise



UNOシリーズにオートフォーカスと自動測定機能を組み合わせることで、工具測定における最高の効率性を実現します。 又、お客様の要件に合わせて最適な仕様を選択できます。

主要な特徴
UNOシリーズ全自動タイプ(オートマチックドライブ)及び半自動タイプ(オートフォーカス)の自動測定機能により作業の効率化を実現します。

The autofocus and automatic drive models of the UNO series provide unique advantages for tool measurement at the highest level. Choose the presetter that meets your needs.

Highlights
Reduce the work load of the operator through the automation of presetting, with full or partially automated measuring functions. The autofocus and automatic drive models of the UNO series provide unique advantages for tool measurement at the highest level.

オートフォーカス / autofocus

刃先に自動で焦点を合わせる為のモーター駆動のスピンドル、システムキャビネット、10ポイントタッチの24インチスクリーンを標準装備。

Automatically focuses on the cutting edge. Motorised spindles with convenient system cabinet and 24", 10 point touchscreen as standard.



オートマチックドライブ / automatic drive

オペレータの操作に依存しない自動測定を実現しました。(CNC制御、x/z/ c 軸) 便利なシステムキャビネットと24インチタッチ式モニタを標準装備しています。

Fully automatic tool presetting and measurement independent of the operator (CNC-controlled, 3-axis), with convenient system cabinet and 24" touch display as standard.

VIO *linear* – 最高の使いやすさと機能性を実現
VIO *linear* – maximum ease of use and functionality

全自動測定サイクルにより、生産工程の信頼性を最大限に高めています。この包括的なコンセプトは、既存の工程を含む全ての生産工程への統合が可能です。

最高の安定性と精度
FEM解析で最適化された熱変位に強い鋳鉄構造のVIO linearシリーズは、正確な測定結果と長寿命を実現します。更に、磨耗と無縁で動的性能に優れたリニアドライブの採用によって長期にわたる高精度を実現しています。平行に配置されたドライブシステムとガイドシステムが理想的な力配分を実現し、±2µmの繰返し精度を可能にしています。

主要な特長
- 高荷重下でもねじれ剛性に優れている
- FEM解析で最適化された熱変位に強い鋳鉄構造
- 最大工具質量 160 kg
- ツールプリセッタとしてはユニークなリニアドライブを採用、測定対象の刃先位置にすばやく、静かに、高精度で接近できます。

Optimise process reliability in your production with fully automatic measurement capabilities. The open device platform allows for the integration of both new and existing production processes.

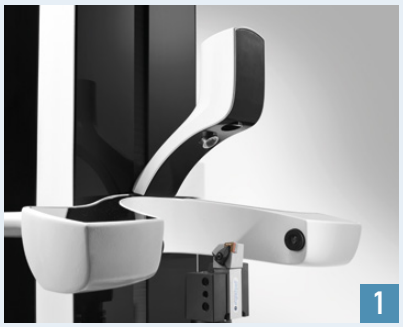
Maximum stability and precision
The FEM-optimised, thermally stable cast iron construction of the VIO *linear* series ensures accurate measuring results and equipment longevity. Additionally, highly dynamic, wear-free linear drives ensure accurate long-term quality. The parallel drive and guidance system ensures optimal distribution of forces and guarantees ± 2 µm measurement repeatability.

Highlights
- Torsionally stiff even under the highest loads
- FEM-optimised and thermally stable cast iron construction
- Maximum tool weight 160 kg
- Fast, silent and highly accurate cutting edge approach via unique linear drive



世界をリードする優れた機能:
- 最高の操作性を実現する全自動測定サイクル
- 高品質な構成部品：Heidenhain, Bosch Rexroth
- メンテナンスフリーのリニアドライブにより、低ノイズで高速且つ高精度の位置決めを実現
- 柔軟性に優れ、使いやすい操作パネル
- 高性能ソフトウェア Microvision VIO
- リリース バイ タッチ
- メジャー バイ タッチ (オプション)

Worldwide leader in innovation:
- Fully automatic measuring cycles for maximum operating convenience
- High quality components from Heidenhain, Bosch Rexroth/THK
- Maintenance free linear drives for higher speed, low noise and highly accurate positioning
- User-friendly operating panel ensures ultimate ergonomics
- High power software Microvision VIO
- Release-by-touch
- Measure-by-touch (optional)


1



2



3

1 旋削バイト芯高調整用第2カメラ(オプション)/*Second camera for measuring the centre of rotation (optional)*
2 + 3 最新のリニアドライブによる全自動駆動/*Fully automatic axis drive via modern linear technology*

工作機械とのデータ交換及びデータ送信
Data exchange and transfer to the machine tool

ポストプロセッサ / イーサネット / USB
測定データは、USB、イーサネットLANなどのインターフェイスを介して、指定された場所に保存されます。

双方向インタフェース
標準ソリューション、カスタマイズソリューションに関係なく、あらゆるソフトウェア(工具管理、データベース、CAD/CAM)に双方向インタフェースを介して、工具データの送受信が行えます。
(UNO smartは対応していません)

ポストプロセッサ及び双方向インタフェース*
HAIMER Microset ツールプリセッタは、全ての工作機械メーカーの機械に対応しています。(UNO smartは対応していません)

HQR
オペレーターはツールプリセッタで印刷されたラベルのコードをスキャンするだけで、NC装置内に測定データが取り込まれ、作業者の手間を省きます。

*測定した工具データは工作機械にすばやく送信できます。FANUC,SIEMENS, HEIDENHAIN,MAPPS, その他多くの制御装置とUSBメモリやイーサネットLANを介して接続可能です。

Post-processor/Ethernet/USB
Post-processed data is transferred to the relevant data exchange drive either via USB or Ethernet LAN.

Interfaces
All presetting units can send and receive tool data to nearly all software (tool management, databases, CAD/CAM) via a bidirectional interface – regardless of whether it is a standard or a customized solution.
(Not available for UNO smart)

Post-processor and interface*
HAIMER Microset tool presetting devices are compatible with machine tools from all manufacturers. (Not available for UNO smart)

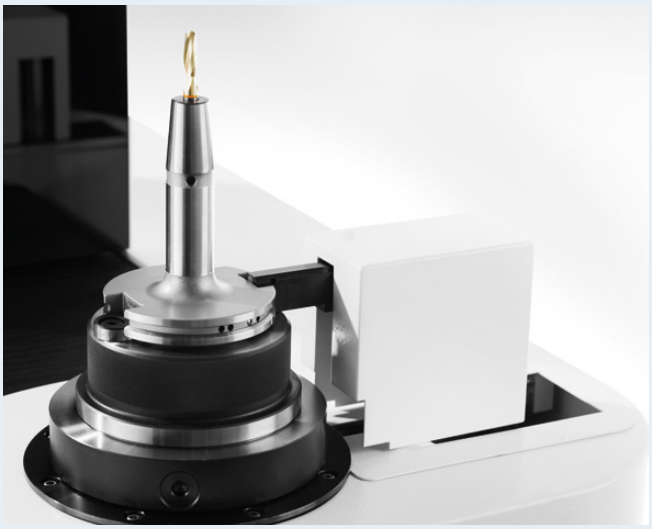
HQR
Easy data input via HQR USB plug in. Input your data at the machine tool via scan of a code on the label, printed on the presetter before, without manual operation of the operator.

**The measured data is quickly transferred directly to the machine tool. Control systems from Siemens, Heidenhain, FANUC, MAPPS and many others can be connected by USB data storage or Ethernet LAN.*

RFID – データキャリアシステム
RFID – data carrier system

- お客様ごとのデータストレージ
- データの検索と保管を一体化した計測工程を実現
- 全てのRFIDシステムとの統合
- 全ての一般的なツールホルダに対して、自動または手動で読み込み／書き込みヘッドを位置決め可能
  (例：Balluff, Euchner, Mazak, Pepperl & Fuchs, Turck)

- Customer-specific data storage
- Measurement processes with integrated data retrieval and storage
- Integration of all popular RFID systems
- The read/write head can be positioned automatically and manually for all popular tool holder systems
  (e.g. Balluff, Euchner, Mazak, Pepperl & Fuchs, Turck)



読み取り／書き込みヘッドの自動位置決め
Automatic positioning of the read/write head



読み取り／書き込みヘッドの手動位置決め
Manual positioning of the read/write head

HQRコネクト / HQR-Connect

HQR-コネクト機能はプリセッタの工具データをQRコードとして印刷します。このQRコードは工作機械側のスキャナーで読み取られ、NC装置内に工具データを取り込みます。

プリセッタで作成されたQRコードには実測値とその他ツールに必要なデータが含まれています。QRコードに保存されたデータはHQR-コネクトを介して、工作機械のNC装置に自動的に転送されます。HQRコネクトシステムは、USBを介して工作機械のNC装置に接続されます。NC側ではQRコードをスキャナーで読み込み、データがNC装置に転送されます。

利点：
- ネットワーク接続は必要ありません
- マニュアル入力と比較して最大45%の時間節約
- 数値入力間違いなどのミスを防止
- 既存装置へのアップグレード可能

(UNO smartは対応していません)

With HQR-Connect tool data can be edited and printed as QR Code on the presetter, then be read by a scanner at the machine tool and directly sent to the machine control.

The tool presetter creates a QR code which contains all the necessary actual values and other features of the tool. Through HQR-Connect the data stored in the QR code is automatically transferred into the data fields of the machine tool. The HQR-Connect System is connected to the machine control via USB. At the machine control, the generated QR code is read with a scanner and the data is transmitted.

Your benefits:
- Network connectivity is not necessary
- Up to 45 % time savings compared to manual entry
- Elimination of manual input errors or transposed digits
- Upgrades are possible at any time

(Not available for UNO smart)

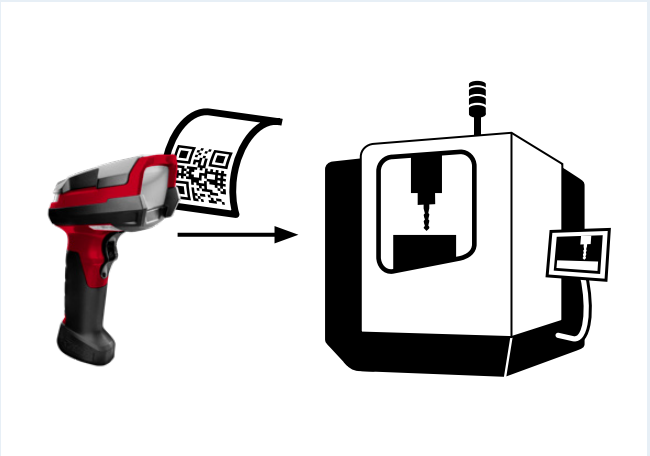
HQRコネクト—機能の紹介
HQR-Connect – Operating principle

- HQRシステムは外部接続(USB)キーボードのように機能します
- データは自動的にNCシステムに転送されるため、読み取りエラーや入力エラーを防止します
- HQRシステムの構成は、Windowsベースのソフトウェアで行われます
- システムは電子装置とQRコードスキャナーで構成されています
- 外部USBキーボードが使用できるUSBポートを持った全てのNCに使用可能

- The HQR-system works like an external (USB) keyboard
- The data is automatically sent to the control system, therefore reading or typing errors are eliminated
- The configuration of the HQR-system is done with a Windows based software
- The system consists of electronics and the QR code scanner
- Available for all control units with USB ports that allow data input via an external keyboard



工具の測定後、QRコードが記載されたラベルが印刷されます
After measuring the tool, a label with the QR code is printed



工作機械のNC装置に接続されているHQRシステムは、QRコードを読み取り、工具データをNC装置に直接転送します。
The HQR system is connected to the control system of the machine. It reads the QR code and transmits the tool data directly to the control system

HRFIDコネクト / HRFID-Connect

HRFID-コネクト機能はプリセッタの工具データをRFIDデータキャリアに書き込みます。これらのデータは工作機械側でも読み取られ、読み取られたデータはNC装置に転送されます。

プリセッタで測定された実測値とその他ツールに必要なデータはRFIDデータキャリア保存されます。HRFID-コネクトシステムは、USBを介して工作機械のNCに接続されます。

データキャリアに保存されたデータは、HRFID-コネクトを介して工作機械のNC装置に自動的に転送されます。

利点：
- ネットワーク接続は必要ありません
- マニュアル入力と比較して最大45%の時間節約
- 数値入力間違いなどのミスを防止
- 既存装置へのアップグレード可能

(UNO smartは対応していません)

With HRFID-Connect tool data can be written on a RFID-data carrier by the presetter, then be read by a RFID reader at the machine tool and directly sent to the machine control.

The actual values measured on the tool presetter and other features of the tool are saved on the RFID data carrier. The HRFID-Connect System is connected to the control system of the machine via USB. The data stored on the data carrier is automatically entered into the data fields of the machine tool via HRFID-Connect transfer.

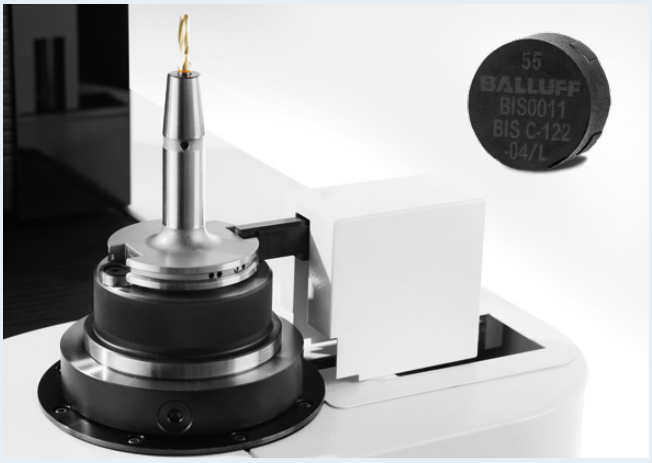
Your benefits:
- Network connectivity is not necessary
- Up to 45% time savings compared to manual entry
- Elimination of manual input errors or transposed digits
- Upgrades are possible at any time

(Not available for UNO smart)

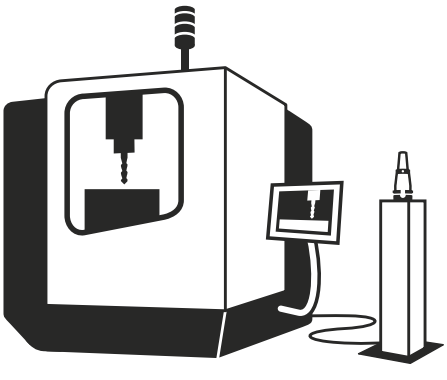
HRFIDコネクト—機能の紹介
HRFID-Connect – Operating principle

- HRFIDシステムは外部接続(USB)キーボードのように機能します
- データは自動的にNCシステムに転送されるため、読み取りエラーや入力エラーを防止します
- HRFIDシステムの構成は、Windowsベースのソフトウェアで行われます
- システムは電子装置とRFIDリーダーで構成されています
- 外部USBキーボードが使用できるUSBポートを持った全てのNCに使用可能

- The HRFID-system works like an external (USB) keyboard
- The data is automatically sent to the control system, therefore reading or typing errors are eliminated
- The configuration of the HRFID-system is done with a Windows based software
- The system consists of an electronic and the RFID reader
- Available for all control units with USB ports that allow data input via an external keyboard



工具の測定後、データはBalluffデータキャリアに保存されます。
After measuring the tool, the data is transferred to the Balluff data carrier



RFIDリーダーは工作機械のNC装置に接続されます。 Balluffデータキャリアを読み取り、工具データをNC装置に直接転送します。
The RFID reader is connected to the machine control. It reads the Balluff data carrier and transmits the tool data directly into the control system of the machine

HAIMER

UNO smart

高性能なエントリモデル
Smart entry into tool presetting



写真：割り出し機能付きUNO smart 20 | 40
Picture shows UNO smart 20|40 with optional locking indexing

ツールプリセッター–マニュアルタイプ
TOOL PRESETTERS – MANUAL

UNO smartはHAIMER Microsetの中ではエントリタイプの機種でタッチスクリーン操作画面で使い易く高精度を特長とします。
現場での測定に適しており、価格的に入手しやすいながらも高性能設計です。

The UNO smart is our entry-level machine featuring a small footprint, user-friendly operation and high precision. It is particularly well suited for measurements right on the shop floor and has all this at an unbeatable price-performance ratio.

標準装備/Standard Equipment	
Microvison SMART イメージプロセッシングシステム	Microvision SMART image processing system
50 番テーパ高精度スピンドル、マニュアル	SK50 high-precision spindle, manual
鋳鉄構造による高剛性長寿命設計	Robust, long-life cast iron construction
熱変位に強い材質部品を組み合わせた高い繰返し精度	Thermally optimised material combination for improved repeatability
マニュアル操作	Manual operation
省電力モード	Energy-saving mode
7インチ マルチタッチ ディスプレイ	7" multi-touchscreen
99 ゼロポイント	Memory for 99 zero points
繰返し精度 ± 5 µm	± 5 µm repeatability

測定範囲/Measurement range	
X軸上最大工具径/ Maximum tool diameter on X-axis	400 mm
Z軸上最大工具長/ Maximum tool length on Z-axis	400/700 mm
最大工具重量/Maximum tool weight	20 kg
装置重量/Weight	20|40: 95 kg 20|70: 105 kg
注文番号/Order No.	**20|40: M-G1111** **20|70: M-G1116**

オプション/Options

- テクノロジパッケージ：工具検査照明、エッジファインダ、リリース バイ タッチ/Technology package: Tool inspection light, edgefinder, release-by-touch
- スマートプロ パッケージ：工具検査照明、エッジファインダ、リリース バイ タッチ、Smart用ベースキャビネット(3個のアダプター用収納付き)、Smart Pro package: tool inspection light, edgefinder, release-by-touch, base cabinet smart incl. adapter tray for 3 tools or adapters
- 割り出し機能4 × 90°及びスピンドルブレーキ Indexing 4 × 90° and spindle brake
- 手動微調整ダイヤル/Manual fine adjustment
- ラベルプリンタ/Label printer
- 芯出し及びキャリブレーションセット/Alignment and calibration-set
- シグマ機能/Sigma function





HAIMER

UNO premium

高品質構成部品を駆使した使い易いベストセラー

The bestseller with high-quality components that complement your machine tool



ツールプリセッター – マニュアルタイプ
TOOL PRESETTERS – MANUAL

UNO Premium – ほとんどのお客様のニーズを満足させる最適なソリューション – マニュアルタイプツールプリセッタの最高峰。 オペレーターに依存しない測定結果、デジタルデータ転送機能で使いやすい。

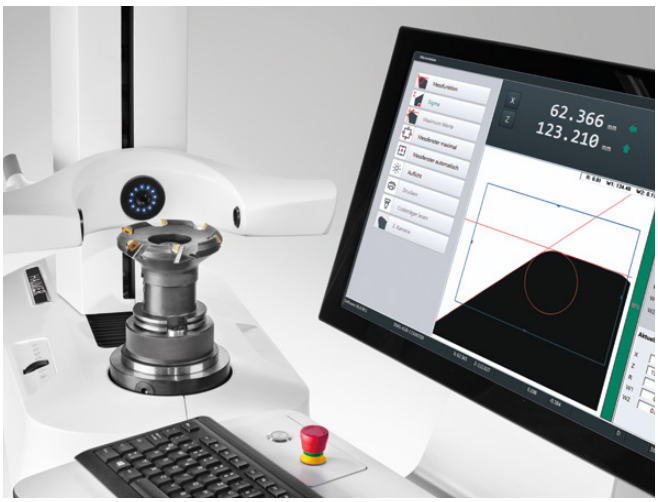
UNO premium – The right solution for almost every user. The highest standard of manual tool presetting. Operator independent measuring results, easy to use with digital data transfer capabilities.

標準装備/Standard Equipment

Microvision UNO イメージプロセッシングシステム	Microvision UNO image processing system
50番テーパ高精度スピンドル、マニュアル	SK50 ultra precision spindle, manual
高剛性、長寿命鋳鉄構造	Robust, long-life cast iron construction
熱変位に強い部品構成により高い繰 返し精度	Thermally optimised material combination for improved repeatability
マニュアル操作	Manual operation
24インチタッチスクリーン	24" touchscreen
Windows 10	Windows 10
プレミアムベースキャビネット(6個のアダプター用収納付き)	Premium base cabinet incl. storage for six adapters
シグマ機能	Sigma function
ツール及びゼロポイントの登録数：1,000	Memory for 1,000 zero points and tools
USB / LAN データ出力	USB/LAN data output
繰返し精度 ± 2 µm	± 2 µm repeatability

測定範囲/Measurement range

X軸上最大工具径/ Maximum tool diameter on X-axis	400 mm
スナップゲージ方式で測定できる最大工具径/ Maximum snap gauge tool diameter on X-axis	100 mm
Z軸上最大工具長/ Maximum tool length on Z-axis	400/700 mm
最大工具重量/Maximum tool weight	30 kg
装置重量/Weight	20|40: 140 kg 20|70: 155 kg
注文番号/Order No.	**20|40: M-G1185** **20|70: M-G1190**



オプション/Options

- テクノロジーパッケージ：工具検査照明、エッジファインダ、リリース バイ タッチ/ Technology package: Tool inspection light, edgefinder, release-by-touch
- 旋削工具用パッケージ：割り出し機能4×90°及び3×120°、第2カメラ/ Turning package: 4×90° and 3×120° indexing, second camera
- 手動微調整ダイヤル/Manual fine adjustment
- ラベルプリンタ/Label printer
- ユーザマネージメント/User management
- マニュアルRFIDシステム/Manual RFID system
- 双方向インターフェース/Bidirectional interface
- ポストプロセッサー/Post-processor
- マニュアルISSスピンドル/Manual ISS spindle
- HQRコネクト/HQR-Connect
- HRFIDコネクト/HRFID-Connect

HAIMER

UNO autofocus

多刃工具に最適
Ideal for multi-edge tools



ツールプリセッタ – セミオートマチックタイプ
TOOL PRESETTERS – SEMI AUTOMATIC

UNO autofocus – 高度な測定に適したプリセッタ。セミオートマチックのメリットによる同一面で複数の刃を測定。

UNO autofocus – The right presetter for demanding measurements. Take advantage of full-automatic spindle operation with multiple tool measurements on one plane.

標準装備/Standard Equipment	
Microvision UNO イメージプロセッシングシステム	Microvision UNO image processing system
50番テーパ高精度スピンドル、オートフォーカス	SK50 ultra precision spindle, autofocus
高剛性長寿命鋳鉄構造	Robust, long-life cast iron construction
熱変位に強い部品構成により高い繰 返し精度	Thermally optimised material combination for improved repeatability
C軸用モータードライブ精密調整	Motorised fine adjustment of the C-axis
24インチタッチスクリーン	24" touchscreen
モーター駆動式割り出し機能4×90°及び3×120°	4×90° and 3×120° motor-driven indexing
空圧式スピンドルブレーキ	Pneumatic spindle brake
エアクランプ	Vacuum clamping
プレミアムベースキャビネット(6個のアダプター用収納付き)	Premium base cabinet incl. storage for six adapters
シグマ機能	Sigma function
ツール及びゼロポイントの登録数：1,000	Memory for 1,000 zero points, tools and tool lists
USB / LAN データ出力	USB/LAN data output
リリース バイ タッチ	Release-by-touch
エッジファインダ	Edgefinder
工具検査照明	Tool inspection light
スピンドル振れ精度 2 µm	2 µm spindle runout
繰返し精度 ± 2 µm	± 2 µm repeatability
ラベルプリンタ	Label printer
Windows 10	Windows 10

測定範囲/Measurement range	
X軸上最大工具径/Maximum tool diameter on X-axis	400 mm
スナップゲージ方式で測定できる最大工具径/Maximum snap gauge tool diameter on X-axis	100 mm
Z軸上最大工具長/Maximum tool length on Z-axis	400/700 mm
最大工具重量/Maximum tool weight	30 kg
装置重量/Weight	20|40: 240 kg 20|70: 255 kg
注文番号/Order No.	**20|40: M-G1140** **20|70: M-G1150**



自動的に刃先に焦点を合わせます
Automatic focus on the cutting edge

オプション/Options
ISS-U ユニバーサル高精度スピンドル、アダプター自動識別/ISS-U universal ultra-high precision spindle with automatic adapter identification
手動微調整ダイヤル/Manual fine adjustment
旋削工具用パッケージ：第2カメラ、モーター駆動式割り出し機能4×90°及び3×120°/Turning package: Second camera incl. indexing, 4×90°, and 3×120° motor driven
マニュアルRFIDシステム/Manual RFID system
双方向インターフェース/Bidirectional interface
ポストプロセッサー/Post-processor
HQRコネクト/HQR-Connect
HRFIDコネクト/HRFID-Connect

HAIMER

UNO automatic drive

最高の便利さを追求した全自動タイプ

Fully automatic measuring for unrivalled convenience



ツールプリセッタ – フルオートマチックタイプ
TOOL PRESETTERS – FULLY AUTOMATIC

全自動測定操作によりUNOシリーズの中で最上位機種であるUNO automatic drive はオペレータの技術に頼ることなく専門知識も不要。これによりたとえ同一面以外の刃を持つ複雑な工具でも最高の品質と最大の時間節約を保証します。

With fully automated measurement capabilities, the UNO automatic drive is the high-end model in the UNO series. The UNO automatic drive is fully independent of the operator and can be used with minimal user expertise. This guarantees maximum quality and time savings, even with complex tools on multiple planes.

標準装備/Standard Equipment

Microvision UNO イメージプロセッシングシステム	Microvision UNO image processing system
3軸(x/z/c)自動計測	Automatic tool measurement in 3 axes
50番テーパ高精度スピンドル、 オートフォーカス	SK50 ultra precision spindle, autofocus
モーター駆動微調整	Motorised fine adjustment of all axes
24インチタッチスクリーン	24" touch screen
モーター駆動式割り出し機能4 × 90°及び3 × 120°	4 × 90° and 3 × 120° motor-driven indexing
空圧式スピンドルブレーキ	Pneumatic spindle brake
エアクランプ	Vacuum clamping
プレミアムベースキャビネット(6個のアダプター用収納付き)	Premium base cabinet includes storage for 6 adapters
シグマ機能	Sigma function
ツール及びゼロポイントの登録数：1,000	Memory for 1,000 zero points, tools and tool lists
USB/LAN データ出力	USB/LAN data output
リリース バイ タッチ	Release-by-touch
エッジファインダ	Edgefinder
工具検査照明	Tool inspection light
スピンドル振れ精度 2 µm	2 µm spindle runout
繰返し精度 ± 2 µm	± 2 µm repeatability
ラベルプリンタ	Label printer

測定範囲/Measurement range

X軸上最大工具径/ Maximum tool diameter on X-axis	400 mm
スナップゲージ方式で測定できる最大工具径/ Maximum snap gauge tool diameter on X-axis	100 mm
Z軸上最大工具長/ Maximum tool length on Z-axis	400/700 mm
最大工具重量/Maximum tool weight	30 kg
装置重量/Weight	20|40: 240 kg 20|70: 255 kg
注文番号/Order No.	**20|40: M-G1160** **20|70: M-G1170**



オペレーターに頼らない全自動プリセッティング
Fully automatic tool presetting and measurement – independent of the operator

オプション/Options

- ISS-U ユニバーサル高精度スピンドル、アダプター自動識別/ ISS-U universal ultra-high precision spindle with automatic adapter identification
- 旋削工具用パッケージ：第2カメラ、モーター駆動式割り出し機能4×90°及び3×120°/Turning package: Second camera incl. indexing, 4 × 90°, and 3 × 120° motor driven
- 双方向インターフェース/Bidirectional interface
- マニュアルRFIDシステム/Manual RFID system
- X/Z軸毎のリリース/クランプ機能/Individual release of X/Z-axis
- ポストプロセッサー/Post-processor
- HQRコネクト/HQR-Connect
- HRFIDコネクト/HRFID-Connect
- ガイド付きリーマー用リーマーモジュール/ Reamer softwaremodule for guided reamers
- 測定値の履歴/Measured value history

HAIMER

VIO *linear*

複雑形状工具の迅速な測定に最適

Perfect for rapid measurements, even on highly complex tools



ツールプリセッタ – フルオートマチックタイプ
TOOL PRESETTERS – FULLY AUTOMATIC

VIO *linear* – 完璧なソリューション:カスタマイズ可能なオプションで高度なツールプリセットを完全自動化。モジュラーコンセプト設計により最大工具長及び径1,000mmまで対応可能。

VIO *linear* – The complete solution: for fully automatic high-end tool presetting with individual options. The modular concept makes it possible to preset tools up to 1,000 mm in length and diameter.

標準装備/Standard Equipment

Microvision VIO イメージプロセッシングシステム	Microvision VIO image processing system
直動により高精度高速位置決め	High precision and fast axis-positioning via linear motion
ISS-U ユニバーサル高精度スピンドル、アダプター自動識別、機械式工具クランプ、モーター駆動式割り出し機能4×90°及び3×120°	ISS-U universal ultra precision spindle with automatic adapter identification, mechanical clamping and motorised indexing 4×90° and 3×120°
モーター駆動式割り出し機能4 × 90°及び3 × 120°	4×90° and 3×120° electronic indexing
空圧式スピンドルブレーキ	Pneumatic spindle brake
高剛性長寿命鋳鉄構造	Robust, long-life cast iron construction
熱変位に強い部品構成により高い繰返し精度	Thermally optimised material combination for improved repeatability
モーター駆動式微調整機能	Motorised fine adjustment of all axes
24インチマルチタッチスクリーン	24" multi-touch screen
システムVIO(最大9個のアダプター用収納付き)	System VIO incl. storage for up to 9 adapters
シグマ機能	Sigma function
ゼロポイントの登録数：1,000	Memory for 1,000 zero points
工具データ登録無制限	Unlimited tool memory
ユーザーマネージメント	User management
水平可動式操作盤	Swivelling control panel
エッジファインダ	Edgefinder
工具検査照明	Tool inspection light
スピンドル振れ精度 2 µm	2 µm spindle runout
繰返し精度 ± 2 µm	± 2 µm repeatability

測定範囲/Measurement range

X軸上最大工具径/Maximum tool diameter on X-axis	400/700/1.000 mm
スナップゲージ方式で測定できる最大工具径/Maximum snap gauge tool diameter on X-axis	100 mm
Z軸上最大工具長/Maximum tool length on Z-axis	500/700/1.000 mm
最大工具重量/Maximum tool weight	160 kg
装置重量/Weight	400–550 kg
注文番号/Order No.	**M-G1035***



オプション/Options

旋削工具用 第2カメラ/Second camera for measuring the centre of rotation	HRFIDコネクト/HRFID-Connect
双方向インターフェース/Bidirectional interface	プリセッター自動化用の双方向ロボットインターフェース/Robot-ready software interface for integration of a robot cell to preset tools without operator
マニュアル/オートマチックRFIDシステム/Manual or automatic RFID system	ハイドロもしくはERコレットチャック用、自動突き出し調整システム/Length stop system for automatic length adjustment for hydraulic or ER collet chucks
27インチマルチタッチ式スクリーン/27" multi-touchscreen	ツールデータを簡単に統合するためのダイレクトフォトストレージ/Direct photo storage for easy integration of tool data
ポストプロセッサー/Post-processor	スカイビングカッター測定機能/Gear Skyving System
VIO Fit/Scan/VIO Fit/Scan	偏心旋盤工具測定用のY軸フォーカス機能/Y-axis for measurement of multi-tool turning holders
アングルヘッドシステム/Angle head system	ガイド付きリーマー用リーマーモジュール Reamer software module for guided reamers
HQRコネクト/HQR-Connect	

* 注文番号は、測定範囲(X、Z軸)が最小モデルの番号です。大きいサイズをご要望の場合、HAIMERにお問い合わせ下さい
This order number is for the smallest unit in X and Z, please contact HAIMER for the order numbers of the larger machines

HAIMER

VIO *linear* toolshrink

シュリンキングとプリセッティング技術の融合
Shrinking and presetting combined



シュリンキング/プリセッティング
SHRINKING / PRESETTING

シュリンキングとプリセッティング技術の融合に加えミクロン単位の長さ調整用スケールを加えることで最高クラスの装置にしました。VIO *linear* toolshrinkはシュリンクホルダー、多軸機械、予備ツールのご使用時には最適な選択となります。

The combination of shrinking and presetting technology with precise length adjustment on the µm scale makes the VIO *linear* top of its class, including the toolshrink variant. The VIO *linear* toolshrink is the ideal choice, especially when using shrink fit holders, duplicate assemblies, or multi-spindle machines.

標準装備/Standard Equipment

Microvision VIO イメージプロセッシングシステム	Microvision VIO image processing system
ISS-U ユニバーサル高精度スピンドル、アダプター自動識別、機械式工具クランプ、モーター駆動式割り出し機能4×90°及び3×120°	ISS-U universal ultra precision spindle with automatic adapter identification, mechanical clamping and motorised indexing 4×90° and 3×120°
他メーカーのホルダーでも加熱可能	Best shrinking results, regardless of the holder brand
リニア駆動による高精度且つ高速な軸移動	High precision and fast axis-positioning through linear motion
HAIMER社製オートマチック13kW誘導コイル	Fully automatic HAIMER induction unit 13 kW coil
シュリンクパラメーターを自動監視	Automatic monitoring of shrinking parameters
自動長さ調整精度 ± 10 µm	Automatic length adjustment within ± 10 µm
フィルター付きヒューム吸煙装置	Extractor with filter
HAIMER接触式冷却：TME温度監視付きクーリングシステム付き	HAIMER contact cooling
24インチタッチスクリーン	24" touchscreen
HAIMER 社製シュリンクホルダーとの組み合わせにより最高の結果: ± 5 µmで焼きばめ	Ideally used with HAIMER shrink fit holders for best results: shrink in on ± 5 µm
短時間で工具着脱可能	Dynamic shrinking for short process times
HAIMERデータベース搭載	Pre-installed HAIMER data base

測定範囲/Measurement range

X軸上最大工具径/Maximum tool diameter on X-axis	420 mm
スナップゲージ方式で測定できる最大工具径/Maximum snap gauge tool diameter on X-axis	100 mm
Z軸最大工具長(シュリンク)/Maximum tool length on Z-axis axis	60–650 mm
Z軸最大工具長 (測定)/Maximum tool length on Z-axis measuring	500/700/1.000 mm
最大工具重量/Maximum tool weight	160 kg
装置重量/Weight	720–800 kg
注文番号/Order No.	**M-G1061***



オプション/Options

旋削工具用 第2カメラ/Second camera for measuring the centre of rotation	Power Clamp i4.0機能を使いクイックシュリンク可能(セットアップ不要)/Quick-in/out, shrinking like a Power Clamp i4.0 (no setup)
双方向インターフェース/Bidirectional interface	プリセッター自動化用の双方向ロボットインターフェース/Robot-ready software interface for integration of a robot cell to preset tools without operator
マニュアル/オートマチックRFIDシステム/Manual or automatic RFID system	ハイドロもしくはERコレットチャック用、自動突き出し調整システム/Length stop system for automatic length adjustment for hydraulic or ER collet chucks
27インチマルチタッチ式スクリーン/27" multi-touchscreen	ツールデータを簡単に統合するためのダイレクトフォトストレージ/Direct photo storage for easy integration of tool data
ポストプロセッサ/Post-processor	スカイビングカッター測定機能/Gear Skyving System
VIO Fit/Scan/VIO Fit/Scan	偏心旋盤工具測定用のY軸フォーカス機能/Y-axis for measurement of multi-tool turning holders
アングルヘッドシステム/Angle head system	ガイド付きリーマー用リーマーモジュール/Reamer software module for guided reamers
HQRコネクト/HQR-Connect	TMEクーリングシステムにより冷却時の温度監視/TME cooling system with active temperature monitoring
HRFIDコネクト/HRFID-Connect	シュリンクパラメーターのスキャン機能/Scan function for shrinking parameters
ラベルプリンタ/Label printer	

* 注文番号は、測定範囲(X、Z軸)が最小モデルの番号です。大きいサイズをご要望の場合、HAIMERにお問い合わせ下さい
This order number is for the smallest unit in X and Z, please contact HAIMER for the order numbers of the larger machines

Microvision – 簡単操作
Microvision – easy and intuitive

Microvision ソフトウェアにより、複雑な形状の刃物も迅速且つ簡単に測定でき、セットアップ時間の短縮を可能にします。

高速、高精度でオペレーターに依存しないツールの測定と設定を行うことができます。この最新の画像処理により、工具の高速かつ正確な測定が可能となり、生産工程での品質を最大限に高めることができます。最新の測定方法を使えば、複雑な工具でも短時間で測定できます。

Microvision software enables fast and easy inspection of complex shapes and features, creating even more time savings potential during setup.

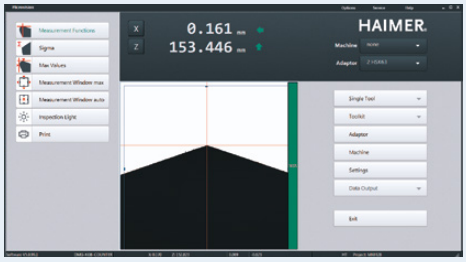
These savings are achieved due to the machine's ability to quickly and precisely measure and set tools, independent from the operator. Modern image processing ensures that the tools are quickly and accurately measured and in turn guarantees the highest quality in your production processes. Complex tools can be measured within an incredibly short period of time with the latest measuring techniques.

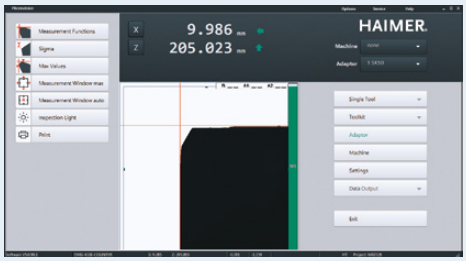
特長

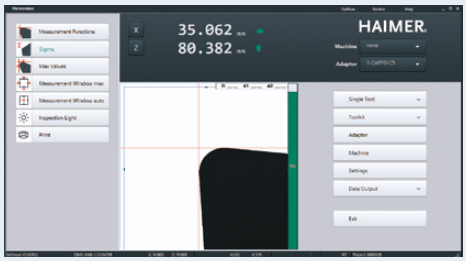
- 誰にも分り易い操作のおかげで迅速正確な測定
- 精密なフォーカスウィンドウにより複雑なヘリカル工具も高精度測定が可能
- ユーザー管理及びアクセスコントロール
- 16:9サイズの表示
- 自動測定及び自動輪郭判定機能を持つ十字照準の固定/移動
- すべての機種に対応する同一ソフトウェア
- Windowsベース
- 測定マクロ機能により登録した工具を自動測定
- カスタマイズされたマスター測定サイクルの作成が可能
- 同一のツールタイプの測定サイクルを簡単にコピーするためのテンプレートモジュール
- 測定結果のセキュリティとプロセス最適化のための測定データ履歴
- HQRIDスキャナーによりツールの検索と測定マクロの呼び出し
- シュリンクパラメーターをQRコードに印刷し、他社シュリンクホルダーのパラメーター管理が可能
- プリントアウトを簡単に設定するプリントエディタ
- データベースに写真を簡単に追加するためのダイレクトフォトストレージ
- デスクからツールをプログラムできるリモートアクセス
- 適切な測定ポイントを作成するための追加ルールと計算

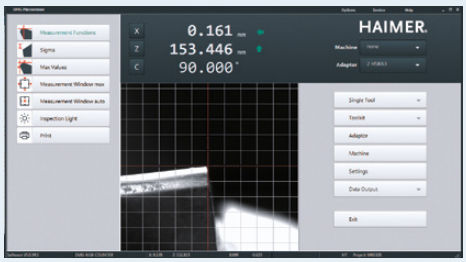
Highlights

- Intuitive operation ensures quick and precise measurement results
- Accurate measurement of complex cutters with the precise focus window
- User administration and access privileges
- Display currently in 16:9 format
- Cross hair fixed/floating with automatic measurement lines and automatic contour evaluation
- Identical software design for all Microset models
- Windows based
- Measuring macros for fast creation of automatic measuring sequences
- Creation of customised master measuring cycles possible
- Template module to easily copy measuring cycle of identical tool types, e. g. drill from one size to the next
- History of measured data for security of measuring results and process optimisation
- HQRID scanner ready, to scan and ID tools and to find the measuring cycle of that specific tool
- QR code parameter print for easy shrink parameter identification for non-HAIMER holders
- Print Editor for easy adjustment of printouts
- Direct photo storage to easily add pictures to the database, right at the presetter
- Remote access, program your tool from your desk
- Measurement rules that allow calculation of theoretical measurement points









あらゆる要求に対応するアダプタとスピンドル
Adapters and spindles for all requirements

高品質精密アダプタとスピンドルは精度の高いプリセット作業には大事な要素です。

素早く簡単に測定作業が行えるように、様々なタイプのアダプタとスピンドルを提供しています。お客様の個別のご要望やご要望について、喜んでご相談に応じます。

ISS-Uユニバーサル超高精度スピンドルは、高精度ダイレクトクランピングを行います。ISS-Uスピンドルは、アダプタを必要とせずに、振れ精度<0.002mm且つ高い把握力を可能にします。

High-quality, precise adapters and spindles are important elements for precise tool presetting.

We offer an extraordinarily wide range of adapters and spindles so that you can quickly and easily get the results you need. We will gladly provide consultation regarding your individual requirements and applications.

The ISS-U universal ultra-high precision spindle enables incredibly high-precision direct clamping. The ISS-U spindle utilizes the highest clamping forces with runout accuracy < 0.002 mm, all without need for adapters.

アダプタ例/Examples of Adapters


1


2


3

標準的な工具ホルダからお客様がお持ちの特殊工具ホルダーまで、あらゆるホルダに対応できるソリューションを取り揃えています。長年に亘り特殊工具の設計に携わってきた実績と経験で、お客様のニーズにお答えします。

We offer solutions for all requirements, from standard tool holders to customer-specific special tool holders. You benefit from our many years of experience in tool design.

50番テーパー高精度アダプタ/*SK50 Ultra precision adapter*
1 HSK63アダプタ(一体型クランプ)/*HSK 63 adapter with integrated clamping*
2 VDI 40アダプタ(マニュアルクランプ)/*VDI 40 adapter with manual clamping*
3 PSC アダプタ(マニュアルクランプ内臓)/*PSC adapter with integrated manual clamping system*

スピンドル例/Examples of spindles


1


2


3

HAIMERが提供する汎用クランプシステムは、工具ホルダーの形状に影響されることなく、工具を正確･確実にクランプすることが出来ます。市場に出回っている一般的なツールホルダー用に設計されたISSアダプタ(2)がこの役目を果たします。

Our offer: the Universal clamping system clamps tools precisely and reliably, regardless of the tool holder's geometry. This also applies to the attachment holder (2), which was designed for all common tool holder systems on the market.

汎用クランプシステム/*Universal clamping system*
1 ISS-U ユニバーサル高精度スピンドル/*ISS-U universal ultra-high precision spindle*
2 ISSアダプタ (SK, HSK, PSC, VDI)/*Attachment holder (SK, HSK, PSC, VDI)*
3 スピンドルにISSアダプタを取り付けた状態/*Complete system*

ツールプリセッタ用クランプー体型アダプタ
TOOL PRESETTING – ADAPTER WITH INTEGRATED CLAMPING



クランプー体型アダプター

以下サイズに対応
HSK-ACET 25/BDF 40 – HSK-ACET 100/BDF 125, HSK-F80 Makino,
PSC 32 – PSC 100, KM 32 – KM 80, VDI 16 – VDI 60,
VDI 25 mit Trifix – VDI 50 mit Trifix, BMT 40 – BMT 75, ER 11–32,
WFB 20–12 – 50–32

Adapter with integrated clamping

Available in taper sizes:
HSK-ACET 25/BDF 40 – HSK-ACET 100/BDF 125, HSK-F80 Makino,
PSC 32 – PSC 80, KM 32 – KM 80, VDI 16 – VDI 60,
VDI 25 with Trifix – VDI 50 with Trifix, BMT 40 – BMT 75, ER 11–32,
WFB 20–12 – 50–32

クランプー体型50番テーパー用アダプタ (SK/BT/CAT/PSC/KM/VDI/BMTの各種インターフェースに対応)
Reduction sleeves from SK50 to SK/BT/CAT/PSC/KM/VDI/BMT adapter with clamping system

テーパーサイズ For taper size	高さ H Height H	注文番号 Order No.
■ HSK-ACET 25	50 mm	M-R1055
■ HSK-ACET 32/BDF 40	50 mm	M-R1034
■ HSK-ACET 40/BDF 50	60 mm	M-R1035
■ HSK-ACET 50/BDF 63	70 mm	M-R1036
■ HSK-ACET 63/BDF 80	80 mm	M-R1037
■ HSK-ACET 80/BDF 100	90 mm	M-R1038
■ HSK-ACET 100/BDF 125	110 mm	M-R1039
■ HSK-F80 Makino	80 mm	M-R4071
■ PSC 32	70 mm	M-R1040
■ PSC 40	80 mm	M-R1046
■ PSC 50	90 mm	M-R1047
■ PSC 63	120 mm	M-R1048
■ PSC 80	140 mm	M-R1049
■ KM 32	40 mm	M-R3200
■ KM 40	40 mm	M-R3210
■ KM 50	60 mm	M-R3220
■ KM 63	60 mm	M-R3230
■ KM 80	80 mm	M-R3240
■ VDI 16	70 mm	M-R1027
■ VDI 20	70 mm	M-R1028
■ VDI 25	70 mm	M-R1029
■ VDI 30	80 mm	M-R1030
■ VDI 30 – Combi 90° Trifix	45 mm	M-R1211
■ VDI 30 – Combi 90°	45 mm	M-R1212
■ VDI 40	80 mm	M-R1031
■ VDI 50	110 mm	M-R1032
■ VDI 60	115 mm	M-R1033

テーパーサイズ For taper size	高さ H Height H	注文番号 Order No.
■ ISO50: Solidfix S1	30 mm	M-R1100
■ ISO50: Solidfix S2	35 mm	M-R1101
■ ISO50: Solidfix S3	37 mm	M-R1102
■ ISO50: Solidfix S4	40 mm	M-R1103
■ ISO50: Solidfix S5	52 mm	M-R1104
■ ISO50: VDI20	60 mm	M-R1093
■ ISO50: VDI25	65 mm	M-R1094
■ ISO50: VDI30	70 mm	M-R1095
■ ISO50: VDI40	70 mm	M-R1096
■ VDI 25 (Trifixシステム)/with Trifix	70 mm	M-R1200
■ VDI 30 (Trifixシステム)/with Trifix	80 mm	M-R1210
■ VDI 40 (Trifixシステム)/with Trifix	80 mm	M-R1220
■ VDI 50 (Trifixシステム)/with Trifix	110 mm	M-R1230
■ BMT 40	95 mm	M-R3100
■ BMT 45	95 mm	M-R3104
■ BMT 50	95 mm	M-R3107
■ BMT 55	95 mm	M-R3103
■ BMT 60	95 mm	M-R3101
■ BMT 65	95 mm	M-R3105
■ BMT 75	95 mm	M-R3106
■ Adapter SK50: ER11		M-R5010
■ Adapter SK50: ER16		M-R5011
■ Adapter SK50: ER20		M-R5012
■ Adapter SK50: ER25		M-R5013
■ Adapter SK50: ER32		M-R5014
■ Adapter SK50: WFB20–12		M-R5210
■ Adapter SK50: WFB24–16		M-R5211
■ Adapter SK50: WFB32–20		M-R5212
■ Adapter SK50: WFB40–25		M-R5213
■ Adapter SK50: WFB50–32		M-R5214

ツールプリセッタ用クランプ機構無しアダプタ (PSCのみ手動クランプ付き)
TOOL PRESETTING – ADAPTER WITH MANUAL CLAMPING



クランプ機構無しアダプター(PSCのみ手動クランプ付き)

以下サイズに対応
SK/BT/CAT/ANSI 20 – SK/BT/CAT/ANSI 45, HSK-ACET 25
BDF 32 – HSK-ACET 100/BDF 125, PSC 32 – PSC 80,
VDI 16 – VDI 60

Adapter without clamping system

Available in taper sizes:
SK/BT/CAT/ANSI 20 – SK/BT/CAT/ANSI 45, HSK-ACET 25
BDF 32 – HSK-ACET 100/BDF 125, PSC 32 – PSC 80,
VDI 16 – VDI 60

クランプ機構無し50番テーパー用アダプター (SK/BT/CAT/ANSI/BBT*/PSC/VDIの各種インターフェースに対応、PSCのみ手動クランプ付き)

Reduction sleeves from SK50 to SK/BT/CAT/BBT*/PSC/KM adapter without clamping system

テーパーサイズ/For taper size	高さ H/Height H	注文番号/Order No.
■ SK/BT/CAT/ANSI 20	45 mm	M-R1004
■ SK/BT/CAT/ANSI 25	45 mm	M-R1003
■ SK/BT/CAT/ANSI/BBT*30	25 mm	M-R1001
■ SK/BT/CAT/ANSI/BBT*40	20 mm	M-R1000
■ SK/BT/CAT/ANSI 45	25 mm	M-R1002
■ HSK-ACET 25/32 BDF	50 mm	M-R1070
■ HSK-ACET 32/40 BDF	40 mm	M-R1010
■ HSK-ACET 40/50 BDF	40 mm	M-R1011
■ HSK-ACET 50/63 BDF	40 mm	M-R1012
■ HSK-ACET 63/80 BDF	55 mm	M-R1013
■ HSK-ACET 80/100 BDF	60 mm	M-R1014
■ HSK-ACET 100/125 BDF	90 mm	M-R1015
■ PSC 32	30 mm	M-R1063
■ PSC 40	30 mm	M-R1064
■ PSC 50	30 mm	M-R1065
■ PSC 63	30 mm	M-R1066
■ PSC 80	70 mm	M-R1067
■ VDI 16	60 mm	M-R1020
■ VDI 20	60 mm	M-R1021
■ VDI 25	40 mm	M-R1022
■ VDI 30	40 mm	M-R1023
■ VDI 40	40 mm	M-R1024
■ VDI 50	50 mm	M-R1025
■ VDI 60	130 mm	M-R1026

* BBTは大昭和精機株式会社の登録商標及び商号です。
BBT is a registered trademark/tradename of Big Daishowa Co. Ltd./Big Daishowa Seiki Co. Ltd.

ツールプリセッタ用ISSアダプタ
TOOL PRESETTING – ISS ADAPTER



オートクランピングシステム ISSアダプタ

- 測定長に対する影響が少ない
- 作業者に依存しない、常に一定のツールクランプ力
- 高い繰り返し精度

ISS Adapter with automatic clamping system

- Minimal loss of measuring range (in Z-axis) due to standardized adapter height
- Constant tool clamping regardless of the operator
- High change accuracy of the adapter

オートクランピングシステム ISSアダプタ
ISS Adapter with automatic clamping system

テーパーサイズ/For taper size	注文番号/Order No.
HSK	
■ HSK-E25	M-R4070
■ HSK-ACET 32/BDF 40	M-R3024
■ HSK-ACET 40/BDF 50	M-R3025
■ HSK-ACET 50/BDF 63	M-R3026
■ HSK-ACET 63/BDF 80	M-R3027
■ HSK-ACET 80/BDF 100	M-R3028
■ HSK-ACET 100/BDF 125	M-R3029
■ HSK 125	M-R4076
■ HSK 160	M-R3056
■ HSK-F80 Makino	M-R3050
PSC	
■ PSC 32	M-R3048
■ PSC 40 – IKZ	M-R3030
■ PSC 50 – IKZ	M-R3031
■ PSC 63 – IKZ	M-R3032
■ PSC 80 – IKZ	M-R3033
■ PSC 100 – IKZ	M-R3010
VDI	
■ VDI 16 mm 手動クランプ付き/with manual clamping	M-R3034
■ VDI 20 mm 手動クランプ付き/with manual clamping	M-R3035
■ VDI 25 mm 手動クランプ付き/with manual clamping	M-R3036
■ VDI 30 mm 手動クランプ付き/with manual clamping	M-R3037
■ VDI 40 mm 手動クランプ付き/with manual clamping	M-R3038
■ VDI 50 mm 手動クランプ付き/with manual clamping	M-R3039
■ VDI 60 mm 手動クランプ付き/with manual clamping	M-R3040
SK/BT/ANSI/CAT/BBT	
■ ISO20 (RS20)	M-R4445
■ SK, BT, ANSI, CAT, BBT*30	M-R3044
■ SK, BT, ANSI, CAT, BBT*40	M-R3045
■ SK, BT, ANSI, CAT 45	M-R3022
■ SK, BT, ANSI, CAT, BBT*50	M-R3046
■ SK, BT, ANSI, CAT, BBT*60	M-R3060

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BBT is a registered trademark/tradename of Big Daishowa Co. Ltd./Big Daishowa Seiki Co. Ltd.

ツールプリセッタ用ISSアダプタ
TOOL PRESETTING – ISS ADAPTER



オートクランピングシステム ISSアダプタ

- 測定長に対する影響が少ない
- 作業者に依存しない、常に一定のツールクランプ力
- 高い繰り返し精度

ISS Adapter with automatic clamping system

- Minimal loss of measuring range (in Z-axis) due to standardized adapter height
- Constant tool clamping regardless of the operator
- High change accuracy of the adapter

オートクランピングシステム ISSアダプタ
ISS Adapter with automatic clamping system

テーパーサイズ For taper size	注文番号 Order No.
KM	
■ KM32	M-R3047
■ KM40	M-R3061
■ KM50	M-R3062
■ KM63	M-R3063
■ KM80	M-R3064
■ KM32 手動クランプ付き/with manual clamping	M-R3091
■ KM40 手動クランプ付き/with manual clamping	M-R3092
■ KM50 手動クランプ付き/with manual clamping	M-R3093
■ KM63 手動クランプ付き/with manual clamping	M-R3094
■ KM80 手動クランプ付き/with manual clamping	M-R3095
BMT	
■ BMT40	M-R3121
■ BMT45	M-R3122
■ BMT55	M-R3124
■ BMT60	M-R3125
■ BMT65	M-R3126
■ BMT75	M-R3127
Nikken	
■ Nikken 3 Lock ISS アダプター40/Adapter 40	M-R4072
■ Nikken 3 Lock ISS アダプター50/Adapter 50	M-R4073

テーパーサイズ For taper size	注文番号 Order No.
Toolshrink	
■ HSK-32 A/E toolshrink	M-R1077
■ HSK-40 A/E toolshrink	M-R1075
■ HSK-50 A/E toolshrink	M-R1074
■ HSK-63 A/E toolshrink	M-R1073
■ HSK-80 A/E toolshrink	M-R1088
■ HSK-100 A/E toolshrink	M-R1076
■ PSC 32 – IKZ/toolshrink	M-R1083
■ PSC 40 – IKZ/toolshrink	M-R1080
■ PSC 50 – IKZ/toolshrink	M-R1078
■ PSC 63 – IKZ/toolshrink	M-R1079
■ PSC 80 – IKZ/toolshrink	M-R1082
VDI	
■ VDI 20	M-R3070
■ VDI 25	M-R3071
■ VDI 30	M-R3072
■ VDI 40	M-R3073
■ VDI 25 Trifix	M-R3075
■ VDI 30 Trifix	M-R3076
■ VDI 40 Trifix	M-R3077
■ VDI 50 Trifix	M-R3078

技術データ
Technical data

		UNO smart	UNO premium
測定範囲/Measurement Range			
最大工具径/Maximum tool diameter	mm	400	400
スナップゲージ方式で測定できる最大工具径/Max. tool diameter for measuring using the snap gauge principle	mm	–	100
工具長さ（Z軸）/Maximum tool length on Z-axis	mm	400/700	400/700
最大工具長（シュリンク）/Maximum tool length shrinking	mm	–	–
操作/Operation			
マニュアル/Manual		●	●
オートフォーカス/Autofocus		–	–
全自動測定/Fully automatic		–	–
シュリンク/Shrinking		–	–
ベースキャビネット/Base cabinet			
Smart用ベースキャビネット(3個のアダプター用収納付き)/System base cabinet smart including storage for 3 adapters		○	–
premium用ベースキャビネット(6個のアダプター用収納付き)/System base cabinet premium including storage for 6 adapters		–	●
システムVIO(最大9個のアダプター用収納付き)/System VIO[1] including storage for up to 9 adapters		–	–
主軸/Spindle			
50番テーパ高精度主軸（マニュアル）/SK50 high precision spindle, manual		●	–
50番テーパ超高精度主軸（マニュアル）/SK50 ultra precision spindle, manual		–	●
50番テーパ高精度主軸（オートフォーカス）/SK50 ultra precision spindle, autofocus		–	–
ISS-U ユニバーサル高精度スピンドル(マニュアル)/ISS-U universal ultra precision spindle, manual		–	○
ISS-U ユニバーサル高精度スピンドル(オートフォーカス)/ISS-U universal ultra precision spindle, autofocus		–	–
自動アダプタ識別機能/Automatic adapter identification		–	–
機械式クランプ/Mechanical clamping		–	–
バキュームクランプ/Vacuum clamping		–	●
主軸ブレーキ/Spindle brake		○	●
割り出し機能4×90°及び3×120°/4×90° and 3×120° indexing		○	○
精度/Accuracy			
主軸振れ精度/Spindle runout	µm	3	2
繰返し精度/Repeatability	µm	± 5	± 2
旋削工具測定/Turning centre measurement			
ダイヤルゲージ、割り出し機能4×90°/Dial gauge incl. 4×90° indexing		○	–
カメラによる割出し4×90°/Camera incl. 4×90° indexing		–	○
その他/Miscellaneous			
工具検査照明/Tool inspection light		○	○
エッジファインダ/Edgefinder		○	○
マグネットボード/Magnet board		–	○
7インチタッチ式スクリーン/7" touchscreen		●	–
24インチタッチ式スクリーン/24" touchscreen		–	●
27インチタッチ式スクリーン/27" touchscreen		–	–
メジャー バイ タッチ/Measure-by-touch		–	–
リリース バイ タッチ/Release-by-touch		○	○
X/Z軸毎のリリース/クランプ機能/Individual release and clamping of X/Z-axis		–	○
ジョイスティック/Joystick		–	–
ソフトウェア/Software			
画像処理/Image processing		Microvision SMART	Microvision UNO
ゼロポイント/Zero points		99	1.000
ツールメモリ/Tool storage unit		–	1.000
シグマ機能/Sigma function		○	●
ユーザーマネージメント/User management		–	○
データ出力/Data output			
ラベルプリンタ/Label printing		○	○
USB/USB		–	●
LAN/ネットワーク/LAN/network		–	●
ポストプロセッサ/Post-processor		–	○
双方向インターフェース/Bidirectional interface		–	○
RFID-システム（マニュアル）/Manual RFID system		–	○
RFID-システム（オート）/Automatic RFID system		–	–
HQRコネクト/HQR-Connect		–	○
HRFIDコネクト/HRFID-Connect		–	○

● 標準装備/Standard　○ オプション/Optional　– 不可/Not available

[1] VIO Linear toolshrink 用ベースキャビネット（3個のアダプター用収納付き）/[1] System base cabinet VIO linear toolshrink including storage for 3 adapters

	UNO autofocus	UNO automatic drive	VIO *linear*	VIO *linear* toolshrink
	400	400	420/700/1.000	420/700/1.000
	100	100	100	100
	400/700	400/700	500/700/1000	500/700/1.000
	–	–	–	650
	•	•	•	•
	•	•	•	•
	–	•	•	•
	–	–	–	•
	–	–	•	•
	•	•	–	–
	–	–	•	•
	–	–	–	–
	–	–	–	–
	•	•	–	–
	–	–	–	–
	○	○	•	•
	○	○	○	○
	○	○	○	•
	•	•	•	–
	•	•	•	•
	○	○	•	•
	2	2	2	2
	± 2	± 2	± 2	± 2
	–	–	–	–
	○	○	○	○
	•	•	•	•
	•	•	•	•
	•	•	–	–
	–	–	–	–
	•	•	•	•
	–	–	○	○
	–	–	○	○
	•	•	•	•
	○	○	•	•
	–	–	•	•
	Microvision UNO	Microvision UNO	Microvision VIO	Microvision VIO
	1.000	1.000	1.000	1.000
	1.000	1.000	無制限/unlimited	無制限/unlimited
	•	•	•	•
	•	•	•	•
	•	•	•	•
	•	•	•	•
	•	•	•	•
	○	○	○	○
	○	○	○	○
	○	○	○	○
	–	–	○	○
	○	○	○	○
	○	○	○	○

HAIMER

TERMS OF DELIVERY AND PAYMENT (FEBRUARY 2024)

I. Generalities

The following conditions apply to all business transactions – also those in the future – with the customer. Our sales and shipping conditions apply exclusively; we do not recognize other conditions as well as especially contrary or otherwise differing conditions on the part of the customer, unless we explicitly approve of the validity of those conditions. Our sales and shipping conditions also apply in the event that we acknowledge contrary or differing conditions on the side of the customer and unreservedly fulfil the order. All agreements reached between ourselves and the customer must be in written form in order to be valid. Our sales and shipping conditions apply exclusively towards registered businessmen/businesswomen if the contract is integrated in operating their business and towards legal entities under public law and separate estates or assets under public law.

II. Prices/Price changes, shipping

1. Our prices offered are Euro prices, and do not include value-added tax. Therefore, value-added tax must be added to the prices at the rate determined by the law applicable at the time. If not agreed specifically otherwise, our prices are ex works, excluding costs for packaging, postage, and shipping. All offered prices are subject to change.
2. Our prices offered are applicable only for the dates of order upon which the offers are based. Subsequent changes or additions upon request or at the instigation of the customer, including additional costs incurred by the above, shall be charged additionally. The same applies for additional costs which might arise as the result of the above from machine down-time. In the event of changes in wages or material costs which arise either between making the offer and the placing of the order, or at any time exceeding four months following completion of contract, we reserve the right to adjust the price accordingly.
3. Shipping of goods occurs at expense and risk of the customer and always plus cost of packaging following to the at any one time valid price list of HAIMER or the relevant valid offer. Inasmuch as goods are shipped at cost and risk of the customer at the customer's request, our liability, as far as is legally permissible, is limited to damage caused intentionally or by gross negligence. At the customer's written request, and at his own expense, goods may be shipped insured by ourselves against theft, breakage, damage to or loss of goods in transit, fire and water damage, or against such other risks as may be expressed explicitly by the customer insofar as such are insurable.
4. As far as can be reasonably expected on the part of the customer, partial shipments are permissible.

III. Payment

1. The goods are to be paid in full, no deductions, within 30 calendar days of date of invoice.
2. Bills of exchange are only accepted upon special agreement and on account of performance without allowance for discount. Discounting and bill charges shall be borne by the customer and become due for payment immediately. We are not liable for the timely presentation of a bill of exchange, its due protest, due notice, or the return of an unpaid bill, unless we or our vicarious agents are guilty of damage by intention or gross negligence.
3. The customer is only entitled to set-off claims if his counterclaims have become res judicata, are uncontested or recognized by ourselves. In the event of contested counterclaims, the customer has no right of retention.
4. In the case of uncontested counterclaims, the customer can only claim a right of retention regarding asserted claims which are based upon the same contractual relationship.
5. With respect to this order the customer is obligated to confirm the receipt of the goods in cases of the delivery from Germany to the foreign countries of Europe; the confirmation has to comply with the regulation concerning turnover tax.

IV. Delay in Payment

1. In the event of delay in payment, we are entitled to charge the legal rate of interest on overdue payments, i.e. the rate of 9% plus the basic annual interest rate current at the time in question and a lump sum of 40.00 € per overdue amount; this notwithstanding, we explicitly reserve the right to assert claims regarding additional damages. If the rate of interest is not claimed firstly this shall not exclude a later enforcement in the frames of the legal limitation; in this regard a forfeiture is excluded.
2. Should we become aware of circumstances which call into question the customer's creditworthiness and therefore deem our claim for payment to be at risk, particularly if the initiation of insolvency proceedings are filed for – or if insolvency proceedings are opened against the customer's property, or if a cheque is not honoured, or the customer stops payments respectively is in extensive default of the payment with collection threat, then we are entitled to declare the residual debt due immediately and to demand immediate payment. Further, we are then entitled to demand advance payment or provisions of security, and to retain the goods until payment, advance payment, or provisions of security are made, and to discontinue processing running orders until the same. If a change of the order required by the customer affects the production time, we can claim for a new delivery time adjusted to the new circumstances. Delay of delivery or performance caused by force majeur, caused by circumstances that are beyond our control and caused by incidents which do make the delivery not only temporary difficult or impossible – this is especially strike, lock out, intervention of public administration, act of war, riots, lack of energy, destruction or damage of our production and operating units, which were beyond our control as well as stoppage of transportation means, restrictions of work, aso., even though this occurs at our supplier or their sub-supplier we are not responsible for even if we agreed on binding delivery deadlines. You allow us to prolong the delivery respectively performance time for the time of interference and an additional initial period. Additionally in such cases we have the right to adjust the price. The above mentioned circumstances do also fall beyond our control if they occur during a already existing delay. Begin and end of such interference will be communicated to the customer as soon as possible. The delivery time is observed in case the product left the premise or we communicated the readiness of shipment to the customer at the end of the delivery time.

V. Reservation of title

1. Until all claims arising from the business relationship with the customer are fulfilled, the customer is required to grant the following securities, which we will release at the customer's request and at our own free will if the securities' value consistently exceeds that of the claims by more than 10%.
2. All goods delivered to the customer remain our property until all claims arising from the business relationship with the customer are paid in full.
3. The object delivered may be neither pledged nor transferred for security to a third party before it is paid in full. In the event of attachment by a third party to the object of delivery, particularly as a pledge, the customer shall refer to our ownership and inform us in writing immediately, so that we can enforce our rights of ownership. The customer is liable for costs which arise judicially or extra-judicially should the third party not be in a position to repay us such costs as arise in relation to the abovementioned.
4. The customer is permitted to sell and process the goods within the context of proper business transactions, as long as he is not in arrears with fulfilling the claims which he owes. We can revoke this permission if the customer is overdue in payments or comes into a state of forfeiture of assets, particularly if insolvency proceedings are opened against his property.
5. The processing or transforming of the goods by the customer shall always be done for us. In the event that the goods are joined, mixed, or blended with other items, we acquire co-ownership in proportion with the value of the goods (sum total of invoice including legal value-added tax) to the remaining items which were joined, mixed, or blended together at the time when they were joined, mixed, or blended together. For the event that ownership of the goods be lost inasmuch as the goods become an integral or necessary part of another item, the customer hereby concedes to us now, in advance, co-ownership of the main item equal to the share which corresponds with the proportion of the value of the goods delivered (sum total of invoice including legal value-added tax) to the value of the main item at the time of said joining, mixing, or blending.
6. In the event that the goods are sold, the customer now and hereby, for the security of our claims arising from the whole of the business relationship, assigns all claims which arise for the customer from resale or from other legal grounds (insurance, tortius act, or the like) against the buyer or third parties, independently of whether the goods, of which we have (partial) ownership, are resold with or without processing. Upon our request, which may be made at any time, the customer must inform us regarding the state of the claim, and allow us or anyone authorized by us to inspect those business records relevant to the above. We grant the customer permission, subject to revocation, to collect the sums due for the claims we assigned, to his own account and in his own name. This direct debit authorization can only be revoked if the customer does not meet his financial obligations in a proper manner. Our authority to collect ourselves the sums due remains unaffected by the above. However, we bind ourselves not to collect the sums due as long as the customer meets his financial obligations with the collected sales revenue, is not overdue for payments, and especially if no initiation for insolvency proceedings has been filed or cessation of payments has been noted. If this is the case, however, we can require that the customer makes known to us immediately the claims assigned and their debtors, including all information required for collection purposes, providing us with all records necessary therefore, and informing the debtors (third parties) of the assignment of claims. We as well have the right of disclosure of assignments against debtors. The customer, however, is not entitled to assign this claim to third parties.
7. Contrary to position 3, the customer is not entitled to sell the goods, even within the context of proper, standard business transactions, if the customer excludes assigning claims based on the sale of the goods to us.
8. In the event of actions contrary to the terms of contract, particularly in the case of delay of payment, we are entitled to rescission of the contract. Following rescission, we can demand return of the goods from the customer.

VI. Delivery time

1. Delivery dates and delivery periods are only binding if they are confirmed by us explicitly in writing.
2. The confirmed delivery dates and delivery periods start when the following cumulative conditions are met: the clarification of all technical questions; the fulfilment of the customer's contractual obligations, particularly that of furnishing records, authorizations, and release statements. When alterations ordered by the customer have an influence upon the duration of production time, we are entitled to insist upon agreeing to a new delivery time which is adjusted to the changed circumstances. We are not liable for delays in delivery and performance, even if binding dates and times have been agreed upon, in case of acts of God, in case of circumstances which we are not responsible for, and in the event of incidents which not only temporarily substantially impede delivery or make it impossible – this includes in particular strike, lock-out, sovereign intervention, acts of war, riots, electrical shortage, destruction or damage to our production or works fixtures for which we are not liable, as well as transportation failure, work limitations etc., also when the above affect our suppliers or their sub-suppliers. Such circumstances entitle us to postpone delivery or performance for the duration of the impediment plus a reasonable starting-up time. Furthermore, such a case entitles us, for our part, to adjust the price accordingly. We are also not liable for the circumstances mentioned if they arise during an already existing delay. Delivery periods shall be subject to correct and timely delivery of goods from our supplier if we have concluded a congruent covering contract and, after careful examination, may assume that our supplier is able to honor the contract properly and on time. In important cases, we will inform the customer as soon as possible regarding the beginning and end of such hindrances. The delivery deadline is met if by date of its expiry the goods have left the works or the customer has received notice of readiness of dispatch.

VII. Sample

Samples of all kinds, whether designs, models, etc., are prepared especially for the customer according to his instructions and only by prior written commission for the same. In every case, these samples will be billed separately to the customer.

VIII. Storage of documents and items for further use

The storage of the customer's papers and other objects such as may serve some future purpose is undertaken only upon prior written agreement and in exchange for special compensation beyond the date of delivery of the goods ordered. The abovementioned goods a/o objects, if they are placed at our disposal by the customer, shall be handled with care up to the delivery date. In this case as well, storage beyond the delivery date is only granted upon prior written agreement and in return for special compensation. Should the abovementioned documents a/o objects be insured against water, fire, theft, or other dangers, the customer must provide the necessary insurance himself. Further, within legally permissible limits, we are exempt from liability for the loss of, damage to, or destruction of these documents a/o objects.

IX. Company print

On objects of our manufacture, we can, with the customer's permission, make reference to our company in an appropriate manner. The customer can only withhold his permission in the event that he has a justifiable interest in so doing.

X. Time limit for making a claim

Upon delivery, the customer must inspect the goods without delay, and in the event that the goods have obvious defects, these must be reported to us within a period of two weeks following receipt of the goods, in the case of shipping from the point of taking delivery from the shipper or carrier; otherwise, the customer's claims regarding defects are excluded. Claims for non-obvious defects can only be asserted within a period of one year upon receipt of the goods, in the case of shipping upon taking delivery from the shipper or carrier.

XI. Warranty

The warranty period is 1 year after passing of the risk. In the event of defects, we are entitled to choose between rectifying the defects or delivering a substitute, up to the amount of the contractual value, unless we or our vicarious agents are guilty of damage by intent or gross negligence, or if we have given a guarantee for the condition of the goods. If two attempts at rectifying the defects or at delivering a substitute fail, or if rectification or substitution is not possible, not to be reasonably expected for the customer, or finally refused by ourselves, then the customer can demand a reasonable reduction in price or withdraw from the contract. For substantial third-party products, our liability is limited initially to the assignment of liability claims to which we are entitled against the supplier of the third-party products. Any liability ensuing on our part in this instance can only be secondary and requires prior recourse to the courts for the supplier of the third-party product. We will reimburse such costs as may arise if they cannot be collected from the supplier and if they were necessary for prosecution. Guarantee and damage claims which exceed the above are excluded, so far as is permissible by law.

XII. Compensation for Damages

The following liability limits apply for damage claims, within the parameters of the law: For all damages arising from culpable breach of contract, we are liable if we ourselves or our vicarious agents are at fault, but only in case of damage by intention or gross negligence. Within the limits of the law, this also applies in cases of default or when performance becomes impossible. Insofar as we are considered liable for damages due to breach of contract which results from a slight degree of negligence on our part or on the part of our vicarious agents, liability for indirect damages is excluded. In each case of damage, our liability shall be limited to a maximum of the respective individual order value. In particlar delay damages arise due to delay in our performance, we are only liable to the extent of contractual value (our own work excluding advance performance and material) if we or our vicarious agents are only at fault for slight negligence. This limitation of liability also applies for damages in connection with services of HAIMER for goods of customers (e.g. Balancing, Cool Jet, Cool-Flash, Duo-Lock or Safe-Lock), whereupon the liability is limited to the extent of the contractual value of the service by HAIMER. In any case, to the extent permissible by law, our liability shall be limited to the amount of damages typically foreseeable at the time of the conclusion of the contract.

XIII. Taking Delivery; Passing of Risk

The customer must take delivery of the goods at the completion time agreed upon if the goods are ready for acceptance. If the customer is in default of acceptance, regardless of article **III. 1** the price agreed upon is due immediately. If the customer does not meet this obligation, we are entitled to withdraw from the contract and to make other use of the goods, whereby the sales revenues gained in this case are credited to the price agreed upon. We must be compensated for profit lost. If the buyer is in default of acceptance or fails to perform other participation duties, then we are entitled to demand compensation for damages thus caused, including any additional expenditures which may arise. We reserve the right to further claims on our behalf. In case of default or delay in acceptance by the buyer, or other failure to perform participation duties on the part of the buyer, then the risk of accidental loss of the goods or of accidental worsening of the state of the goods passes over to the buyer from the point in which he entered into the state of default in acceptance or debtor's delay.

XIV. Ownership, Copyright, Duty of Secrecy

Those articles of the trade which we use to manufacture the product of the contract, in particular special means of operation (tools, devices) remain our property and shall not be delivered. We reserve for ourselves the ownership and copyrights of estimates of cost, drawings, and other documents. They may only then be made available to unauthorized third parties if we give our prior explicit written permission. The customer is solely liable if, in the process of executing orders, any rights, particularly copyrights, trademarks, or patents of third parties are infringed upon. The customer indemnifies us against claims of third parties in the event of such violations of rights. All ideas and documents drawn up by ourselves, in particular samples, sketches, designs, technical information, models, technical drawings etc. are under the protection of our intellectual property, have to be treated confidential and may not be used or applied in any manner without our prior written consent.

XV. Export and Compliance, confidentiality

1. The customer (Buyer) confirms if he resales HAIMER products that he complies with all provisions and regulations of german and international export controls as well as with the US re-export regulations. The customer (Buyer) declares with his order his compliance with this kind of laws and regulations. Additionally the customer (Buyer) confirms with his order that the products will remain in the delivery country respectively will not be delivered out of the European Union.
   In addition, the following applies:
   Our fulfillment of the contract is subject to the proviso that it is not affected by obstacles arising from national or international foreign trade regulations, embargoes and/or other sanctions, which may in particular result in penalties or other adverse measures by authorities of the United Nations, the European Union, the United States of America or other countries.
   The customer (buyer) shall comply with the applicable provisions of national and international (re-)export control law when passing on to third parties the goods delivered by us or the work and services performed by us (including technical support of any kind).
   In any case, he shall comply with the (re-)export control regulations of the Federal Republic of Germany, the European Union, the United States of America and other countries when passing on such goods, works and services to third parties.
2. The customer (buyer) agrees to comply with all national and international anti-bribery and anti-corruption laws and international ethical standards. In particular, both parties commit to show mutual respect, good conduct and loyalty. The parties will keep the details of the cooperation (including price, quantity, number of units) confidential and will not publish them without the consent of the other party. At no time will they make negative public statements about the person, products or services of the other or damage the reputation and prestige of the other. If we notice that the customer (buyer) is in breach of anti-corruption regulations, relevant laws or ethical standards, we shall be entitled to rescind the contract and/or hold ourselves harmless.

XVa. Affairs with the Russian Federation

1. The customer (Buyer) shall not sell, supply, transfer, export or re-export, directly or indirectly, to the Russian Federation or for use in the Russian Federation any goods supplied that fall under the scope of Article 12g of Council Regulation (EU) No 833/2014.
2. The customer (Buyer) shall undertake its best efforts to ensure that the purpose of nr. 1 is not frustrated by any third parties further down the commercial chain, including by possible resellers.
3. The customer (Buyer) shall set up and maintain an adequate monitoring mechanism to detect conduct by any third parties further down the commercial chain, including by possible resellers, that would frustrate the purpose of nr. 1.
4. Any violation of nr. 1, 2 or 3 shall be entitled to seek appropriate remedies, including, but not limited to the rescission of the contract.
5. The customer (Buyer) shall immediately inform us about any problems in applying nr. 1, 2 or 3, including any relevant activities by third parties that could frustrate the purpose of nr. 1. The customer (Buyer) shall make available to us information concerning compliance with the obligations under nr. 1, 2 and 3 within two weeks of the simple request of such information.

XVI. Sustainability Guidelines

1. Our company is committed to sustainability guidelines and expects a similar commitment and application from all business partners. Our sustainability guidelines can be accessed via the following link: https://www.haimer.com/shop/catalog/downloads/files/22_06_CodeOfConduct_210x297/22_06_CodeOfConduct_210x297_EN.pdf
2. We reserve the right to review this at our business partners after consultation as part of quality audits.

XVII. Applicability of German Law

The law of the Federal Republic of Germany is exclusively applicable. Application of the UN Convention on Contracts for the International Sale of Goods, dated January 1, 1991, is precluded.

XVIII. Place of Performance, Place of Jurisdiction, and Validity

The place of performance for all claims arising from this contractual relationship is place of business of the seller. The place of business of the seller is also the place of jurisdiction for all legal disputes arising from this business connection. We are, however, entitled to bring grievances before the legal place of jurisdiction as well. The partial or complete invalidity of any provision in these terms of sales and delivery, or of any provision within the context of other agreements, whether now or in the future, shall not affect the validity of any part of the remaining provisions or agreements. The invalid provision is then replaced by that lawfully permissible provision which is closest to the meaning of the invalid provision.

HAIMER®
Quality Wins.



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