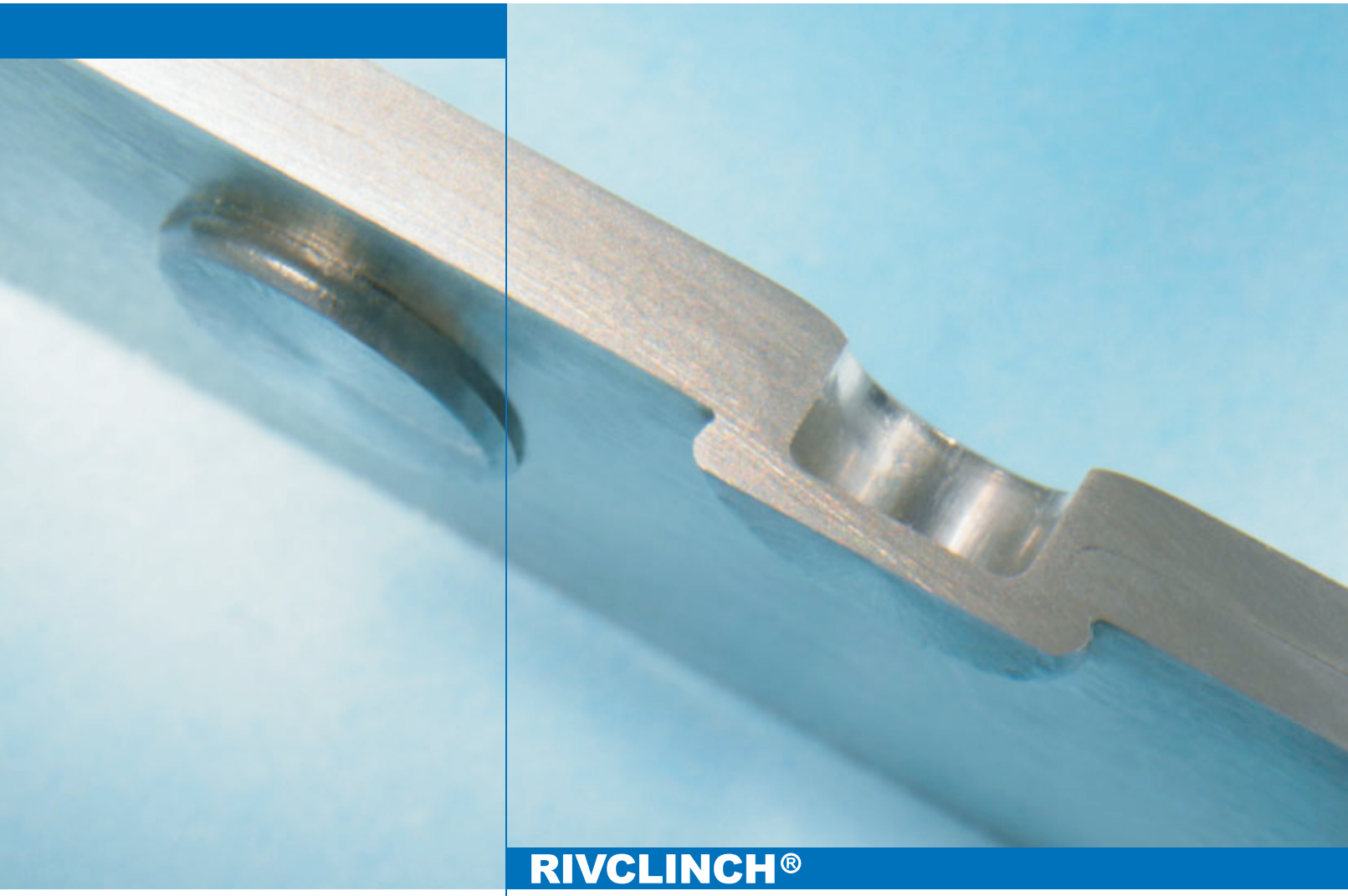


RIVCLINCH®

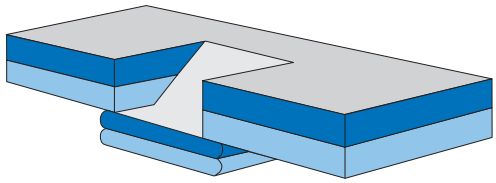
Metal joining without fasteners

无紧固件金属连接

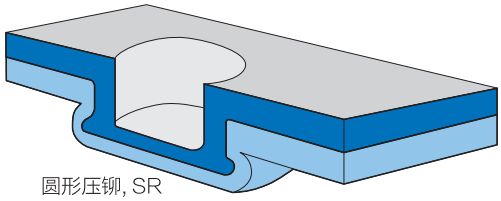
BÖLLHOFF attexor

压铆：一般原理
Clinching: general principles

压铆工艺通过材料局部冷成型将钣金连接在一起。两层或多层材料之间会产生互锁压铆。
经镀层或油漆的钣金也可以压铆在一起而不会损伤表面保护层。
RIVCLINCH®连接技术可用于连接钢质材料和不锈钢材料以及铝质和/或有色金属材料，压铆工艺经济环保。
根据所选用的RIVCLINCH®连接工具，所产生的铆点可能是圆形的或矩形的。
SR圆形压铆为气密式，无需切割材料。因此，它能更好地保护涂层，提供较高的抗腐蚀性和抗疲劳性。
ST矩形压铆是切割与变形工艺结合的产物，主要适用于多层（五层及以上）和较硬的材料如不锈钢。



矩形压铆, ST
Rectangular Clinch, ST



圆形压铆, SR
Round Clinch, SR

The clinching process is a method of joining sheet metal by localised cold–forming of the materials. This produces an interlocking joint between two or more layers of material.

Coated and painted sheet metals can also be joined together without altering the surface finish.
The RIVCLINCH® joining technique can be used to join steel and stainless steel materials as well as aluminium and/or non–ferrous materials based on a cost effective, environmentally friendly process.

Depending on the RIVCLINCH® joining tool selected, the resulting clinch will either be round or rectangular.
The SR round joint, without cutting through the material, is gas tight. Consequently, it protects the coating better and provides high corrosion and fatigue resistance.
The ST rectangular clinch joint is the product of a combined cutting and deforming process. It is primarily suited to multi–layer (up to 5 and more) and harder materials such as stainless steel.

RIVCLINCH® 连接技术的优点
The advantages of the RIVCLINCH® Joining Technique

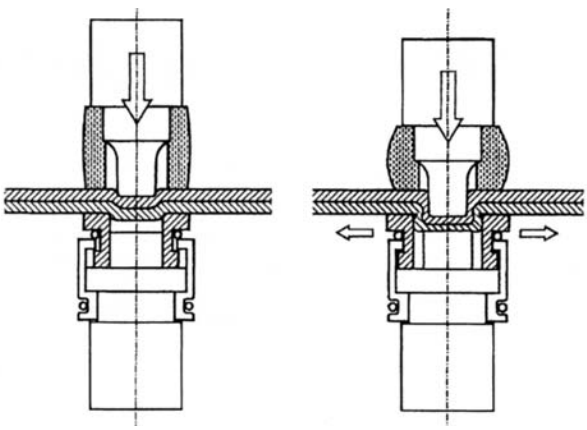
- 检查铆点时无需损坏工件
- 无耗材
- 低能耗
- 连接区域无热负荷
- 不会损伤工件表面的保护层
- 低维护成本
- 大多数情况下中间的薄膜层或胶粘层能合成一体
- 很好的连接再生性
- 环保的工作环境
- 无烟尘和火花，噪音很低
- 无需预先/事后处理，
  例如，不需要事先清理或事后清除连接点周围的喷涂附着物

- Joints can be checked without damage
- No consumable items
- Low energy use
- No thermal load on joining zone
- No damage to surface finishes on the work piece
- Low maintenance costs
- Interim layers of film or adhesive can be incorporated in most cases
- Very good joint reproducibility
- Environmentally friendly workplace
- No fumes, no sparks, very little noise
- No pre/post treatment required, e.g. no pre–cleaning or subsequent removal of spray deposits around the joint

压铆连接头
The Clinch Joint

在RIVCLINCH®连接过程中，首先通过冲头将连接材料压入底模内。当底层材料刚接触到底模座时，在冲头施加的压力作用下，底模座开始向外侧滑动。底模活动部分被向外推出，材料的流动形成了按钮状的压铆点。然后操作员或气动计时器松开冲头压力，将冲头返回至起始位置。此时可将压铆工件取走，底模的外侧部分在弹簧的作用下退回。

RIVCLINCH® 连接系统可与现有的冲压系统或定制设备整合。 它可同时进行一个或多个点的连接，并可以与手动设备以及自动化设备和系统整合。



In the RIVCLINCH® joining process, the materials to be joined are firstly forced into the die with the punch. As soon as the lowest material is resting on the die anvil, it starts flowing sideways under the pressure being exerted by the punch. The movable die sections are pushed outwards and the flow of material forms the button–like joint. The punch is then returned to its starting position by the operator or by a pneumatic timer which removes the force. The joined part can now be removed and the side sections of the die are pulled back together by a spring.

The RIVCLINCH® joining system can be incorporated into existing press systems or custom built machines. It can be used to simultaneously set one or several points and can be integrated within manual machines and robotic equipment and systems.

影响压铆点质量的变量
Influential variables on the quality of a clinch Joint

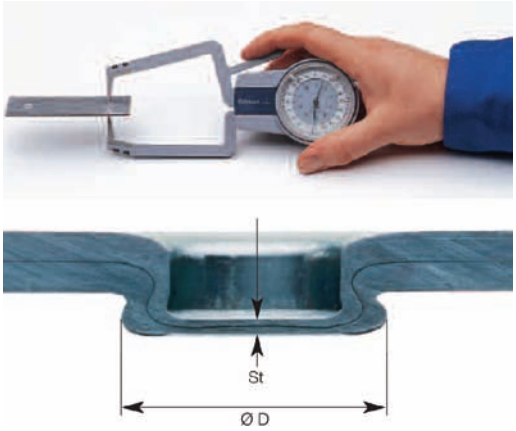
与其他连接技术相比，压铆的特点在于4个基本参数：
Compared with other joining techniques, clinching is characterized by 4 essential parameters:

- 材料延展性：一般而言，矩形（局部切割）铆点所需的延展值为20%，圆形铆点为30%。
- 从两侧进入：用于冲压位于冲棒与模座之间的材料
- 连接不同厚度的钣金时，冲棒位于厚侧会有更好的连接可行性和强度
- 一旦连接成型，最相关的参数为残余底厚“St”，这与互锁效果和最终的连接强度直接相关

- Material ductility: in general, the required ductility values are 20% for a rectangular (partial cut) joint and 30% for a round joint.
- Access from both sides: needed for pressing the material between the punch and the anvil
- Better joint feasibility and strength with the punch on the thick side, when joining sheet metal with different thicknesses
- Once the joint is formed, the most relevant parameter is the residual bottom thickness, “St”, which is directly related to the interlocking effect and consequently the joint strength.

压铆铆点参数与控制
Clinch Joint parameters and control

RIVCLINCH® 铆点在不被损坏的情况下可方便地进行检测，通过测量残余底厚“St”和底模侧铆点的直径“D”。
对于每项应用，均会进行实验室试验事先确定和记录这些数值，并在报告中注明试验编号。在之后的生产过程中会对这些参数进行测量，并与参考数据进行对比，以确保对 RIVCLINCH® 铆点有可靠的质量控制。
残余底厚“St”采用卡尺手动测量，如图所示。这样就可以在随机样本上进行质量检验而无需中断生产。

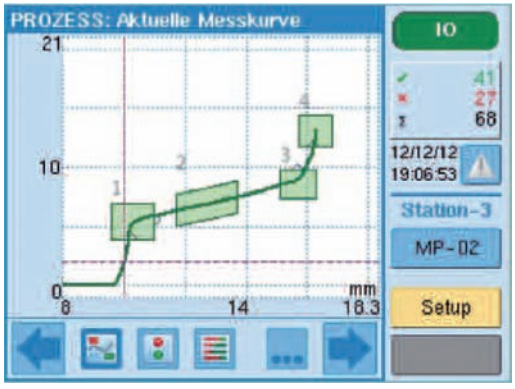


The RIVCLINCH® joint can be easily tested without being damaged, by measuring the residual base thickness, “St” and the joint diameter “D” on the die side of the joint.

These values are predetermined in laboratory tests for each application and recorded, with a test number, in a report. These parameters will be subsequently measured during production and compared with there reference data, thus guaranteeing reliable quality control of the RIVCLINCH® joint.
The residual base thickness, “St”, is measured by hand using a calliper, as shown in the photograph. This allows quality checks to be carried out on random samples without interrupting production.

过程监控
Process Monitoring

电子“智能”过程控制器可用于检查自动化生产或大批量生产的连接过程。安装在 C型架上的力传感器以及用于测量工具位置的位移传感器发出的信号会产生每个压铆点的力-位移实时曲线。软件允许检查“窗口”与曲线同时运行，最后一个窗口便是已完成的铆接的最终值。若信号偏离参考窗口，则会向线路控制器或机器人发出一个错误信号来停止机器并统计分析。



An electronic, “smart”, process controller can be used to check the joining process for automated or mass production. The signals from a force sensor, installed on the C–frame, in conjunction with a displacement sensor measuring the tooling position, yield a force–displacement curve in real time for every clinch joint. The software allows check “windows” to be programmed along the curve, the last one being the final value of the completed joint. If the signal deviates from the reference windows, an error signal can be sent to the line controller or to the robot to stop the machine and for statistics analysis.

RIVCLINCH® 铆点强度值
Strength value of RIVCLINCH® Joints

剪切和交叉张力强度是用来对比压铆与其他连接方式（如点焊，铆接或螺丝接合）的好方法。右侧的图片显示了标准工具和软钢的最新数据。

静态剪切拉伸强度取决于板材厚度

材质：钢板

强度=~300 N/mm²

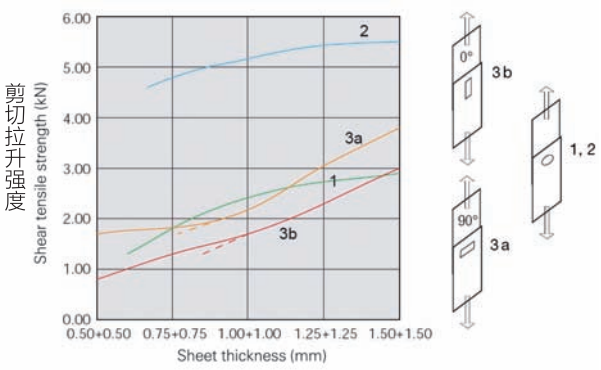
SR 504，Φ5mm

SR 804，Φ8mm

3a. ST 432，横向于负载方向放置

3b. ST 432，纵向于负载方向放置

当铆接矩形铆点（ST）时，会涉及到方向依赖性。为获得更高的强度，若是矩形接头，则负载方向应横向于连接件，如图中（3a）所示，而不是纵向（3b）。上述图片还显示了铆点直径（1至2）扩大，强度也会增加。



板材厚度（mm）

The shear and the cross–tension strength are a good means of comparing clinching with other joining methods such as RIV welding, riveting or screwing.
The graph on the right hand side shows the most current values for the standard tooling and mild steel.

Static shear tensile strength depending on sheet thickness
Material: steel plate
Strength =~ 300 N/mm²
1. SR 504, Ø 5 mm
2. SR 804, Ø 8 mm
3a. ST 432, placed transverse to load direction
3b. ST 432, placed longitudinal to load direction

There is a directional dependency involved when making a rectangular joint (ST). To achieve a greater strength, the load direction in the case of the rectangular joint should be transverse to the joining element, (3a) in the graph, rather than longitudinal (3b). The graph above also shows that the widening the joint diameter (1 to 2) also increases in strength.

RIVCLINCH® 工具系列
The RIVCLINCH® tooling family

RIVCLINCH®连接系统的核心组件是模具或“模具包”。这些模具可用于公称直径为3, 4, 5, 6, 7, 8和10mm的圆形压铆以及公称直径为3, 4, 4.3, 5和6mm的矩形压铆。非标尺寸一般为直径1.0至10mm。
多功能模具套可用于将成套模具与相应的RIVCLINCH®便携式装置，模块化铆接头或冲压机进行整合。

The central component of the RIVCLINCH® joining system is the tooling, or “tool kit”. These are available for round clinch joints with nominal diameters of 3, 4, 5, 6, 7, 8 and 10 mm and rectangular point joints with nominal widths of 3, 4, 4.3, 5 and 6 mm. Non standard dimensions are generally available from diameters of 1.0 to 10 mm.
A multiple tool holder can be used to integrate tool sets into corresponding RIVCLINCH® portable units, modular work heads or a press.

扇形底模体设计
Design of the segmented die body

RIVCLINCH®底模包含基本的底模体和独立的扇形底模，其位置由一个钢质弹簧固定。罩壳始终保证独立的部分与底模体相连，避免掉落。根据应用需求选择底模设计的底模腔可由2,3或4个扇形部分组成。

The RIVCLINCH® die comprises a basic die body and individual die segments, which are held in position by a steel spring. A surrounding cage permanently secures the separate sections to the die body preventing them from falling out. The die cavity can be formed by 2, 3 or 4 segments with die designs being selected depending on the application requirements.

冲棒脱模器
Punch Strippers

脱模器有两个主要功能：压铆时保持钣金平整，模具退回时将钣金退出冲棒。有多种标准脱模器可供选择，由于每个应用的可达性条件可能各有不同。如有需要，可提供特殊规格。

The stripper has two essential functions: keeping the sheet metal flat while clinching and pushing the sheet metal out of the punch during the return motion of the tooling. A number of standard strippers are available, given that accessibility conditions may vary for each application. Special executions may be supplied if necessary.

选择标准
Criteria for selection

在研究一种新的压铆应用时，选择模具是第一步，因为这将决定压紧力的大小以及压铆力装置和铆接头的尺寸。该选择取决于：

- 钣金厚度和材质：根据材料类型，每个模具都有自己的厚度范围。
- 模具所需的可达性和空间：材料越厚，所需的模具越大。
- 强度要求：模具尺寸与铆点强度之间有直接关系。可优先考虑获得最高强度或选用较小模具以使设备成本降至最低。
- 冲棒位置：如有可能，冲棒应始终位于较厚层，这将产生较高的铆接强度。
- 板材层数与可变性：若使用的材料延展性较低或超过两层，则应选用矩形模具，同种应用中还涉及到不等厚度或可变总厚度。

Selecting the tooling is the first step involved when studying a new clinching application, because it will determine the pressing force and therefore the size of the clinching force unit and work head. This choice will depend on:

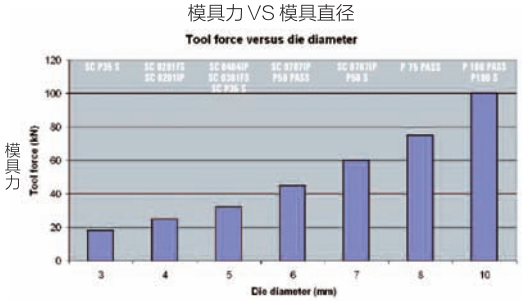
- Sheet metal thickness and material: each tooling has its own range of thickness per material type.
- Accessibility and space allowed for the tooling: the thicker the material, the larger the tooling required.
- Strength requirement: there is a direct relation between the size of the tooling and the joint strength. Priority can be given to obtaining either the highest strength, or minimizing the cost of the equipment by selecting a smaller tooling.
- Punch location: whenever possible, the punch should always be on the thicker layer, which will provide a higher joint strength.
- Number and variability of sheet layers: a rectangular tooling should be selected if a low ductility material is used or if more than 2 layers, unequal thicknesses or variable total thickness are involved in the same application.

模具与设备的兼容性
Compatibility of tooling with the machine

RIVCLINCH®铆接头被设计成可适应多种标准工具。对于每个底模直径都对应一个带有适当铆接力的相应的力装置。这使得很容易去选择压铆设备。无论底模的直径或宽度如何，一个适合的铆接头可以在便携式或模块化自动工业中使用。

The RIVCLINCH® work heads are designed to accommodate the various standard tooling. A corresponding force unit with appropriate setting force exists for each die diameter. This makes it quite simple to select the clinching machine. Irrespective of the die diameter or width, a suitable work head is available in the portable or in the modular range.

模具力 VS 模具直径

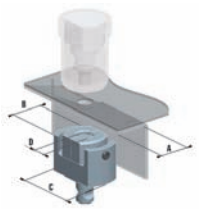
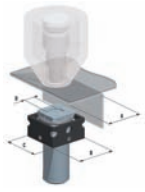
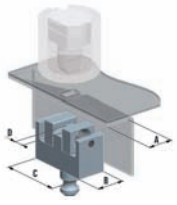
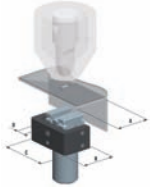


模具直径 (mm)

根据压铆区域和材料厚度选择模具
Tool selection based on clinch area and material thickness

选择的主要参数是压铆区域，一般由钣金壁的边缘界定。底模的宽度或直径必须与边缘宽度（A）相匹配，因此底模的外径至少等于钣金边缘。在冲棒侧，极限尺寸为脱模器前端的宽度。若压铆受限，则可能提供特殊的脱模器前端。

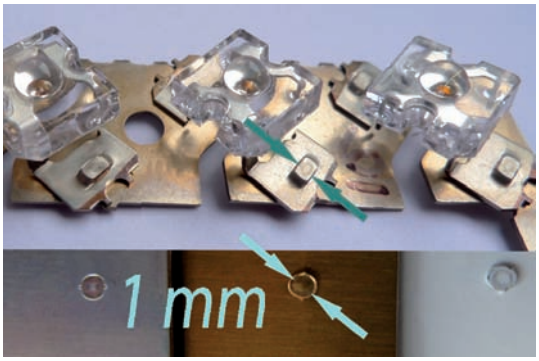
The main parameter for selection is the clinch area, in general defined by the edge of the sheet metal wall. The width or the diameter of the die must match the edge width (A) so that the die's outer dimension is at least equal to the sheet metal edge. On punch side, the limiting dimension will be the width of the stripper front piece. A special stripper front piece may be provided in case of limited access.

模具类型 TOOL ING TYPE	压铆区域几何形状 GEOMETRY OF CLINCH AREA	A(mm)	B(mm)	C(mm)	D(mm)	总厚度（mm） TOTAL THICKNESS	铆接力（kN） SETTING FORCE
SR302		8.0	8.0	22.0	3.0	0.5 - 2.0	18
SR402		8.0	8.0	22.0	4.0	0.5 - 2.5	25
SR502		10.0	10.0	22.0	5.0	1.0 - 3.0	35
SR602		12.0	12.0	25.0	6.0	1.0 - 3.0	40
SR403		13.0	13.0	13.0	4.0	0.8 - 2.5	25
SR503		14.0	14.0	14.0	5.0	1.0 - 3.0	32
SR603		16.0	16.0	16.0	6.0	1.0 - 4.0	45
SR703		18.0	18.0	18.0	7.0	1.0 - 4.0	60
SR704		18.0	18.0	18.0	7.0	1.5 - 4.0	60
SR804		22.0	22.0	22.0	8.0	2.0 - 6.0	75
SR1004		22.0	22.0	22.0	10.0	2.0 - 6.0	100
ST302		8.0	8.0	20.0	3.3	0.5 - 2.5	20
ST432		10.0	10.0	22.0	4.3	1.0 - 3.0	35
ST502		12.0	12.0	22.0	5.0	1.5 - 4.0	50
ST602		21.0	21.0	30.0	6.0	2.0 - 6.0	75

专业工具
Speciality tooling

Bollhoff ATTEXOR Clinch Systems为特定行业提供优化、先进的压铆方案，尤其是：

- 微型压铆工具，用于电子和手表行业15年，1.0mm的底模直径
- 电接点工具，直径在2至3mm之间
- 过滤器工具，ST402，可用于通风行业的高厚度过滤织物材料
- 通风管道工具，使机器能快速横向位移



微型压铆 Micro clinch

Bollhoff ATTEXOR Clinch Systems provides optimized and advanced clinching solutions for specific industries, notably:

- **Micro clinch tooling**, which have been used in the electronic and watch industries for 15 years, with a small record die diameter of 1.0 mm
- **Tooling for electric contacts**, with diameters ranging between 2 to 3 mm
- **Tooling for filters**, ST402, accepting high filtering fabric material thickness in the ventilation industry
- **Tooling for ventilation ducts**, which enables fast lateral displacement of Machine

便携式 RIVCLINCH® 装置
Portable RIVCLINCH® machines

压铆手动工具和便携式装置种类繁多，使得您只需花最低的投资成本便可将压铆应用于您的生产，同时也可以为每项应用提供最佳的解决方案。
整套RIVCLINCH® 手动工具系统由以下部分组成：

- 铆接头：设计取决于应用的特定范围内所选择的型号。
- 模具包：适用于该应用
- 旋转悬架，借助于旋转环或整套回转悬架
- 空气–油增压器的比例为1:60。注解：IP系列为100%气动，无需增压器。
- *一组2m软管（置于安全套管中的液压和气动软管），可以选择一组3m的
- *平衡器，取决于铆接头的重量
- *优化循环控制器（OCC），用于快速自动压铆循环。

*=可选项

The very wide range of clinching hand tools and portable machines offers the opportunity to incorporate clinching into your operation for a minimum investment cost and to provide the best solution for practically every application.
A complete RIVCLINCH® hand tool system is composed of the following parts:

- Work head: design depends on the model selected for the particular range of applications.
- Tool kit: suited to the application
- Rotating suspension, by means of rotating ring or a complete gyroscopic suspension
- Air–to–Oil pressure booster with 1:60 ratio. N.B. The booster is not needed for the IP series which are 100% pneumatic.
- *Pack of 2 m flexible hoses (hydraulic and pneumatic hoses in safety sleeve), with a 3 m variant
- *Balancer, depending on the weight of the work head
- *Optimized Cycle Controller (OCC) for fast and automatic clinch cycle

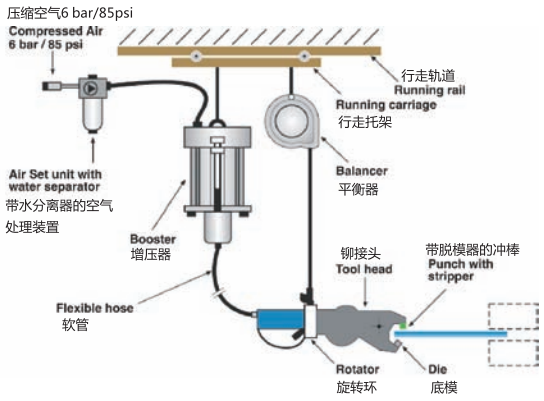
*=Options

便携式压铆设备的安装
Installation of a portable clinching machine

增压器和平衡器应安装在组合式行走托架上，以避免发生碰撞，同时应保持铆接头的吊索正好垂直于整个工作区。
气源必须干燥，经过过滤且可调节，最小尺寸为 ½"，以保证最短循环时间。
所有RIVCLINCH® 系统均被设计应用于不带润滑剂的空气预处理装置上进行操作。

The booster and the balancer should be in stalled on a combined running cradle to avoid collisions, while maintaining the suspension cable of the work head perfectly vertical over the whole work zone.

The air supply must be dry, filtered and regulated, with a minimum size of ½" for ensuring the shortest possible cycle time.



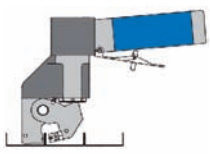
All the RIVCLINCH® systems are designed for operation without lubricator on the air preparation unit.

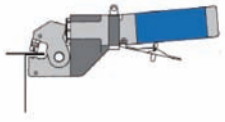
如何选择设备
How to select the machine

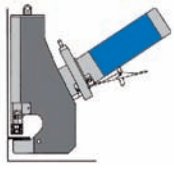
一旦选定了工具(见第8页)，便可根据待压铆产品的几何形状以及压铆区域的可达性来选择铆接头。
Once the tooling has been selected (see page 8) the choice of the work head will be dictated mainly by the geometry of the product to be clinched, and by accessibility to the clinch area.

小边缘： Small edges:

该处的示例展示了大型产品的柜、外壳和壁的外部边缘的装配。选择该工具的优势是考虑到其的高速，轻型和灵活性所带来的非凡的生产率。
the examples here show assembly of the external edges of cabinets, housings and walls of large size products. This choice is advantageous given the high speed, light weight and the mobility of the tool which offers exceptional productivity.

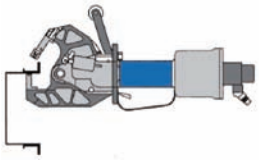

0201FS壁结构
0201 FS Wall structure

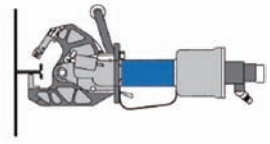

0210FS柜边缘
0201 FS Edge of cabinet


0501FS柜壁
0501 FS Cabinet wall

中型： Medium range:

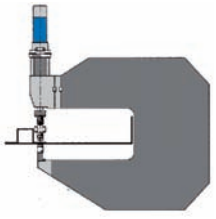
需要较大钳口开度的型材或折边材料的装配。IP型号快速而安全的锁紧钳对于该类产品而言是完美的解决方案。
the assembly of profiles or folded edges which require a larger jaw opening. The quick and safe closing jaw of the IP models is a perfect solution for such Products.

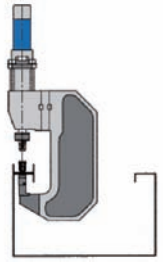

SC 0404 IP 箱子与导管
SC 0404 IP Boxes and ducts


SC 0404 IP壁板
SC 0404 IP Wall panel

大型结构： Large structures:

经常需要将压铆点设置在远离边缘或越过台阶的位置。经常需要在产品上方或进入较狭窄的箱子里进行操作。若采用同一个力装置可提供多种 C 型架尺寸和几何形状，这种设备则是最佳解决方案。
It is quite often necessary to set the clinch joint further away from the edge, or for passing over steps. Working from the top of a product or accessing a more confined box is often necessary. This type of machine is the best solution in this case as various C' frame dimensions and geometries can be supplied using the same force unit.


SC P50 PASS 大型框架
SC P50 PASS Large Frame


SC P50 PASS 外壳
SC P50 PASS Housing

便携式RIVCLINCH® 设备
Portable RIVCLINCH® machines

FS系列（增压驱动）：轻型快速的手动工具
FS Series (booster driven): light and fast hand tools

用于连接边缘和平板的轻型快速工具。适用于柜，冷藏橱窗展示，自动售货机，冰箱，通风以及其他许多领域。

Light weight and fast tools for joining edges and flat panels. Convenient for cabinets, refrigerated window displays, vending machines, freezers, ventilation and many other sectors.

型号 Models	SC 0201FS	SC 0201 FS V2	SC 0301 FS	SC 0501 FS	SC 0501 FS V1
工具头重量(kg) Weight of work head	1.7	2.0	3.5	4.5	4.8
冲压力(kN) Setting force	25	22	35	35	24
周期时间(S) Cycle time	0.5–0.8	0.5–0.8	0.8–1.0	0.8–1.2	0.8–1.0
活塞行程(mm) Piston stroke	7	7	7	8	7
钳口深度(mm) Depth of jaw	16	6	35	35	20
工具头高度(mm) Noze height	25	16	52	45	20
最大厚度、软钢(mm) Maximum thickness, Mildsteel	2.5	2.0	3.0	4.0	2.5
最大厚度、不锈钢(mm) Maximum thickness, Stainless st	1.8	1.2	2.0	2.5	1.8

IP系列，100%气动，快速锁紧钳
IP Series, 100% pneumatic, quick locking jaws

多功能钳式压铆机，若到达铆点为中距离，则该系列是理想的选择。宽开口，带预行程安全，手动或自动快速锁紧铆接头（专利未决）。可用于很多领域，如建筑部件，通风管道，HVAC（采暖，通风和空调），电器，汽车等。

Multi–purpose, jaw type clinchers, ideally suited for applications with medium distance to access the joint. Wide opening with safe pre–stroke, by manual or automatic fast closing of the work head (patents pending). Many sectors of applications with building components, ventilation ducts, HVAC (Heating, Ventilation and Air–Conditionning, appliances, automobiles, etc.

型号 Models	SC 0201 IP	SC 0404 IP	SC 0404 IP V2	SC 0604 IP	SC 0707 IP
工具头重量(kg) Weight of work head	2.7	4.5	4.7 to 5.7	7.0–7.3	22
冲压力(kN) Setting force	25	3.5	35	35	50
周期时间(S) Cycle time	0.3–0.7	0.5–0.9	0.5–0.9	0.5–0.9	0.7–1.2
工作行程(mm) Work stroke	7	7	7	7	8
钳口开度(mm) Depth of opening	–	34	34	36	70
钳口深度(mm) Depth of jaw	20	45	45	60	70
最大厚度、软钢(mm) Maximum thickness, Mildsteel	2.5	3.0	3.0	3.0	4.5
最大厚度、不锈钢(mm) Maximum thickness, Stainless st	1.8	2.5	2.5	2.5	3.0

PASS系列-C型架式，多功能，大型铆接头
PASS Series – C-frame type, multi-purpose, large size work-heads

便携式，强有力的工具，由压缩空气增压器驱动液压。多功能C型架式铆接头系列，有独特的PASS（被动接近行程系统）可选。预行程为气动式，工作行程能被单独启动，以获得安全和长的接近行程以及便于工具定位。C型架有多种尺寸，深度可达450mm，用于所有工业，大型组件和机柜。

Portable, powerful tools, hydraulically powered by compressed air boosters. Multi-purpose C'frame type work head family, equipped with the unique PASS (Passive Approach Stroke System) option. The pre-stroke is pneumatic and can be activated independently of the work stroke, for a safe, long approach stroke and for easy tool positioning. Wide range of C'frame dimensions with depths up to 450 mm, for application in all industries, large assemblies and cabinets.

型号 Models	SC 1106 P35	SC 1106 P50	SC 4006 P50	SC 0606 P75
工具头重量(kg) Weight of work head	16	17	115	50
冲压力(kN) Setting force	35	50	50	75
周期时间(S) Cycle time	0.6–0.8	0.7–0.9	0.7–0.9	0.7–1.2
活塞行程(mm) Piston stroke	8	8	8	8
PASS 开度(mm) Pass opening	60	60	60	60
钳口深度(mm) Depth of jaw	110	110	400	55
最大厚度、软钢(mm) Maximum thickness, Mildsteel	3.0	4.0	4.0	6.0
最大厚度、不锈钢(mm) Maximum thickness, Stainless st	2.5	3.0	3.0	3.5

如有需要，可提供所有设备的技术说明。

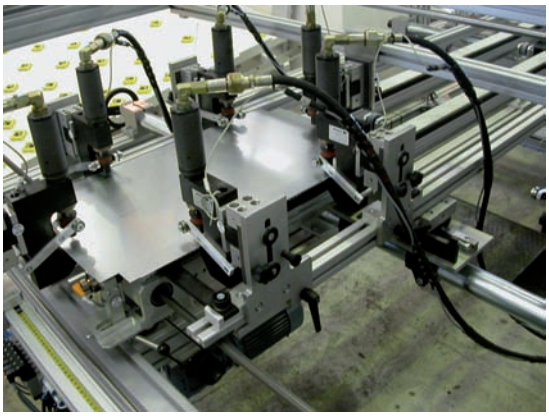
Technical descriptions for all our machine are avalaible up on request.

用于集成和自动化的RIVCLINCH® 模块化系统
RIVCLINCH® Modular systems for integration and automation

模块化方案拟用于线路制造商和集成商以及需要高效的工具用于快速创建定制方案的人们，且模块化方案适用于多种压铆装配任务。解决方案会涉及到台式或落地式设备，特殊的装配工作站，自动装配线或机器人工作站。系统由高成本效益的标准液压铆接头组成，由连接到压缩空气的空气推油式增压器驱动，力装置容量、行程长度、C型架深度和铆接头的组合配置不限。

采用预调组件可方便地设计和建立多种铆接头工作站，无需使用复杂的电动液压动力装置，且可立即投入使用。有限的油量也可以防止大量油泄露以及普通液压装置一段时间后无法避免的污物。

一旦定义了该应用功能的模具包类型，尺寸和铆接力，总会有合适的铆接头进行驱动并建立压铆装置。附件包括增压器，工具架，冲棒脱模器，底模保护装置，适用于自动操作的补偿支架，手动按钮和脚踏开关，用于自动控制的多种传感器，用于整个生产控制的优化循环控制器和过程监控装置。一些便携式设备也基于模块化，使用像平衡器和负载能力适当的旋转悬架附件的帮助。



增压器 Boosters

S120/60 S80/60 S40/60 S20/60

The modular program is intended for line builders and integrators and for people requiring efficient tools which enable rapid creation of customized solutions and suited to a wide variety of clinching assembly tasks. The solutions can involve bench mounted or stand alone machines, special assembly work stations, automatic assembly lines or robot stations.

The systems are composed of cost effective standard hydraulic work heads, powered by air-to-oil pressure boosters simply connected to compressed air, for unlimited combinations of force unit capacity, stroke length, C' frame depth and work heads.

Multiple work head stations can be easily designed and built with pre-adjusted components, and without the use of a complicated electro-hydraulic power installation, and can be immediately operational. The limited oil volume also prevents large oil leakages and the inevitable dirtiness of usual hydraulic installations over time.

Once the tool kit type, dimension and setting force are defined as fonction of the application (see page 3 and 4), there will always be the right work head to power it and to build the clinching installation.

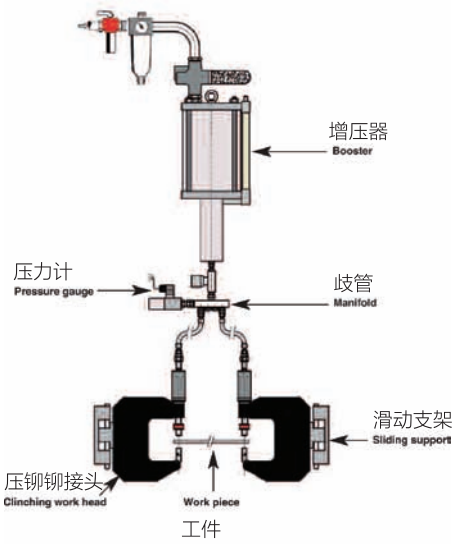
Accessories include boosters, tool holders, punch strippers, die protections, compensated supports for adaptation to automatic operation, hand triggers and foot pedals, various sensors for automatic control, optimized cycle controller and process monitoring device for full production control. Some portable applications are also based on modules, with the aid of accessories like balancers and gyroscopic suspensions with appropriate load capacity.

适用于长行程的PASS解决方案
The PASS solution for long stroke

如第 11 页所描述的便携式设备，小型气缸可提供较长的预行程，不需要大量油。因此，只要一个增压器在工作行程内动作并驱动多个铆接头。PASS解决方案的另一个优点在于在连续铆接多个压铆点时可以节省周期时间而无需启动长接近行程和返回行程。每个模块（范围在 35kN至300kN）均可作为PASS选项。
一般的模块化装置由一个或多个铆接头安装在滑动（补偿）支架上，由增压器驱动组成。工件必须自动或手动放入冲棒和底模之间，不能损坏工具或工具架。在压铆循环开始前，将铆接头移到滑动支架上，直至工件接触到 C 型架上的模具。这样压铆循环便可在压铆工件或压铆工具和铆接头不发生任何变形的情况下顺利展开。

As described on page 11 for portable machines, a long pre-stroke can be provided by a small pneumatic cylinder, which eliminates the need for large oil flows. Therefore only one pressure booster can power several work heads by just acting during the work stroke. Another advantage of the PASS solution is to save cycle time when making several clinch joints in a row without having to activate the long approach and return strokes. Each module range, from 35 kN to 300 kN, can be equipped with the PASS option.

The usual modular installation comprises one or several work heads, mounted on sliding (compensating) supports, and powered by a booster. The work piece must be introduced automatically or manually in-between the punch and the die, without hurting the tooling or the tool holder. Prior to the clinching cycle, the work head is moved on its sliding support until the part comes into contact with the tooling attached to the C' frame side. In this way the cycle is operated smoothly without any distortion to the clinched part or to the clinching tooling and work head.



自动式PASS铆接头
Robotic PASS work heads

带有整体化气动-液压力装置的紧凑型压铆设备新系列可用于：

- 台式（手动操作）
- 自动生产线（整体化压铆头）
- 安装在机器人上

只需一根6bar（85psi）压缩空气管道，便可获得循环时间（高达每分钟80个铆点），节能（只需在最小工作行程内便可触发全自动），灵活性（52mm（2”）的预行程易于可达性操作）以及用于过程控制的多种预安装传感器方面的出色性能。

New range of compact clinching machines with integrated pneumatic-hydraulic force unit for use as:
Bench mounted (manually operated)

- Automatic lines (integrated clinching heads)
- Robot mounted
- Simply powered by a 6 bar (85 psi) air compressed air line, they offer exceptional performance in terms of cycle time (up to 80 joints per minutes), of energy saving (the full power is only activated during the minimum work stroke), of flexibility (with a pre-stroke of 52mm (2”) for easy accessibility, and of possibilities of various pre-installed sensors for process control.

RIVCLINCH® 模块
RIVCLINCH® Modules

铆接头按最大铆接力进行分类
The work heads are grouped according to their maximum joining force.

SC P35/P50 S系列
Series SC P35 / P50 S

铆接力为35或55kN，轻质C型架，多种尺寸可用，最高为1300mm。PASS选项可用于所有模块。
采用标准模具包：见第8页相应的铆接力和钣金厚度。
with 35 or 55 kN joining force, light C' frames, all possible dimensions up to 1300 mm are available.
The PASS option is available for all modules.
It uses standard tool kits: see corresponding setting force and sheet metal thickness on page 8.

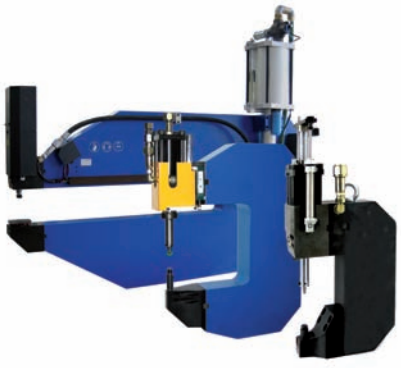
RIVCLINCH® 类型 RIVCLINCH® Type	铆接力（kN） Setting Force(kN)	活塞行程（mm） Piston Stroke(mm)	C型架深度（mm） C' frame depths (mm)					
P35 S	35	8-50	35	70	110	200	300	650
P35 PASS	35	8-60						
P50 S	55	8-50						
P50 PASS	50	8-60						

SC P75/P100 S系列
Series SC P75 / P100 S

铆接力为75或105kN
适用于较厚的钣金（总厚度最高为8mm）以及多种工具配置。可提供适用于该应用的特殊脱模器。PASS选项适用于所有模块。
采用标准模具包：见第8页相应的铆接力和钣金厚度。增加所有模具包对应的力，以选择相应的铆接头。

With 75 or 105 kN joining force For thick sheet metal (up to 8 mm total thickness) and for multiple tooling configuration.
Special strippers adapted to the application may be supplied.
The PASS option is available for all modules.
It uses standard tool kits: see corresponding setting force and sheet metal thickness on page 8. Add the force of all tool kits in order to select the corresponding work head.

RIVCLINCH®类型 RIVCLINCH® Type	铆接力（kN） Setting Force(kN)	活塞行程（mm） Piston Stroke(mm)	C型架深度（mm） C' frame depths (mm)				
P75 S	75	8-100*	100	160	250	400	650
P75 PASS	75	8-100*					
P100 S	105	8-25					
P100 PASS	105	8-100					

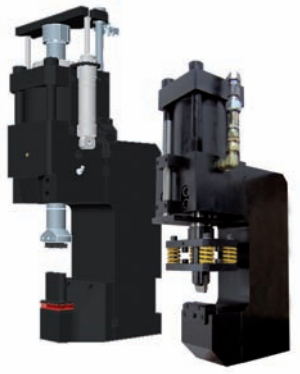


SC P200/P300 S系列
Series SC P200 / P300 S

铆接力为200或300kN。
根据应用，可定制不同模具（多种模具包）和C型架深度来配备压铆机。PASS选项适用于所有模块。
采用标准模具包：见第8页相应的铆接力和钣金厚度。增加所有模具包对应的力，以选择相应的铆接头。

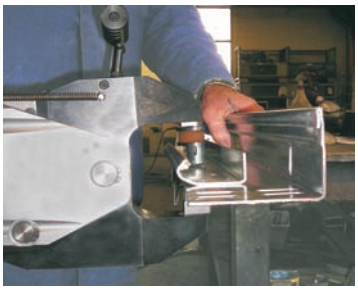
with 200 or 300 kN joining force Clinching presses with customized tooling arrangement (multiple tool kits) and C' frame depth according to the application. The PASS option is available for all modules.
It uses standard tool kits: see corresponding setting force and sheet metal thickness on page 8. Add the force of all tool kits in order to select the corresponding work head.

RIVCLINCH®类型 RIVCLINCH® Type	铆接力（kN） Setting Force(kN)	活塞行程（mm） Piston Stroke(mm)	C型架深度（mm） C' frame depths (mm)		
P200 S	240	8-25*	100	200	300
P200 PASS	240	8-100			
P300 S	300	8-100*			
P300 PASS	300	8-100			

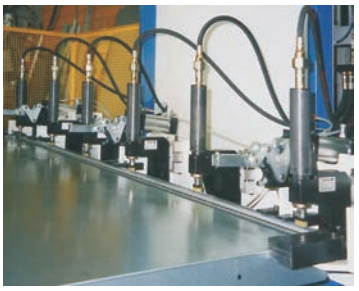


RIVCLINCH® 铆接应用实例
Examples of RIVCLINCH® Joint applications

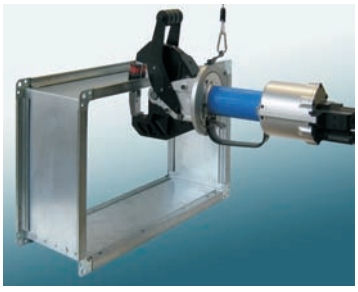
建筑领域
Building sector


车库门 Garage doors

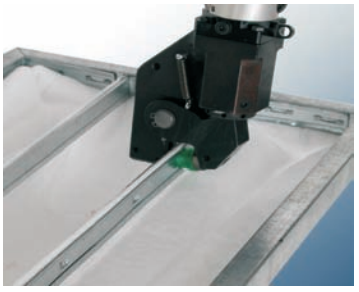

脚手架 Scaffolders


门框 Door frames

采暖，通风，空调（HVAC）
Heating, Ventilation, Air Conditioning (HVAC)


通风管 Ventilation ducts

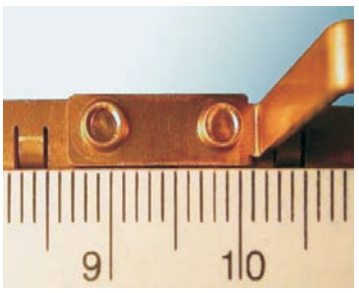

太阳能集热器 Solar collectors


通风过滤器 Ventilation filters

电器
Appliances


炉 Stoves

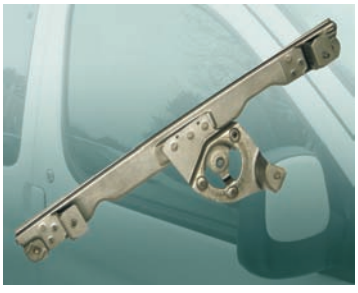

洗衣机 Washing machines



电接点 Electric contacts

汽车领域
Automotive sector


隔热罩 Heat shieids


车窗装置 Window mechanisms


引擎罩 - 行李箱
Bonnets/hoods-Boots/truncks

Böllhoff International with companies in :

Argentina
Austria
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Apart from these 21 countries, Böllhoff supports its international customers in other important industrial markets in close partnership with agents and dealers.

青岛震坤行贸易有限公司
电话：0532-85081293
传真：0532-83027892
e-mail:thinkingtrading@126.com
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