PFEIFER

Originalbetriebsanleitung
Klemmen & Zangen
PFEIFER-RENFROE

DE

Translation of the original operating manual Clamps & Grabs PFEIFER-RENFROE

EN

Traduction du manuel d'utilisation original
Pinces
PFEIFER-RENFROE

FR

Traducción del manual original
Garras & Pinzas
PFEIFER-RENFROE

ES

Traduzione dell' istruzione per l'uso originale
Morse & Pinze
PFEIFER-RENFROE

IT

06/2013 V 2.0

All spare parts lists are available online and free of charge at:

→ **www.pfeifer.de/en/lifting-technology/download**

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1. Preface

Our extensive range of clamps and grabs contains numerous models for various transport assignments.

It is very important for you to employ the clamp or grab which you have chosen as instructed. The following notes are intended to help you to avoid possible causes of accidents.

The manufactured clamps and grabs comply with the regulations and tests stipulated in EN 13155, Australian Standard AS 4991-2004 and ASME B30.20 at the time of their delivery. The quality inspection conducted before delivery is applicable as an expert's inspection and is in accordance with ISO 9001:2008.

2. Basic Safety Precautions

2.1 The following operating manual describes the clamps and grabs and its operation. Should there be any unanswered questions, please contact PFEIFER Seil- und Hebetechnik GmbH in Memmingen/Germany and we will be only too pleased to be of assistance.

2.2 It is essential that the operating manual is read and fully understood before initial use of a clamp or a grab. The owner must ensure that all users have read and understood the operating instructions.

2.3 The operating manual is designed for sufficiently trained and qualified personnel to carry out correct operation, maintenance and repairs to the clamps and grabs. It is therefore imperative that only sufficiently qualified personnel operate, maintain and repair the clamps and grabs (see 2.11 "User Groups"). PFEIFER Seil- und Hebetechnik GmbH will not accept any liability for maintenance and repair work that has been carried out incorrectly.

2.4 This operating manual incorporates the internationally recognised SI units of measurement.

2.5 The operator of the clamp or grab is obliged to strictly adhere to and record all maintenance and servicing schedules specified in this operating manual.

2.6 The clamp or grab may only be used as described in the applications table on page 6 (e. g. lifting, transporting and lowering of girders). Any dangers to the life and limb of the user or others must be avoided. Every other use is unauthorised and relieves PFEIFER of any liability and guarantee obligation.

2.7 This operating manual must be readily available to the operating, maintenance and servicing personnel during the whole period the clamp or grab is used (obligation to keep on file!).

2.8 PFEIFER Seil- und Hebetechnik GmbH retain the copyright of all these technical documents and the operating manual must not be made available to third parties or competitors of PFEIFER Seil- und Hebetechnik GmbH.

2.9 Use personal safety equipment in accordance with the workplace hazard evaluation (also see BGR 500)! We recommend a protective helmet, safety shoes and, if necessary, gloves!

2.10 We retain the right to make changes. All specifications and details were prepared in accordance with the best knowledge of the originator and the company, and the originator cannot be held responsible in any way for discrepancies.

2.11 The following user groups may carry out the actions specified in each case:

User groups	Task	Qualification
Expert personnel	Commissioning, operation, maintenance/wear test	Logistic experts, expert metalworkers, fitters, industrial mechanics, etc.
Instructed persons (and apprentices)	Operation, visual inspection	Instructed by owner using the operating instructions (prior to commissioning!)

Definitions of user groups:

Expert personnel are those, who can evaluate the work they are entrusted with and detect possible dangers based on their professional training, knowledge and experience of the applicable regulations.

Instructed persons are those, who have been instructed on the tasks entrusted to them and the possible dangers in case of improper behaviour and, if necessary, trained and informed on the necessary safety equipment and safety measures.

Lay people are those, who are qualified neither as experts nor as instructed persons.

3. Danger Symbols

3.1 Each operation, maintenance and servicing action of the clamp or grab may only be carried out with due consideration of the operating instructions specified in this operating manual.

3.2 It is therefore imperative that you carefully read and understand the instructions in this operating manual before commissioning the clamp or grab. The specially marked safety precautions must be strictly adhered to!

3.3 Important instructions, especially technical safety instructions, are identified by respective symbols (pictographs), the meaning of which is described in the following text. Observe these instructions to prevent any physical injuries and/or material damage.

DANGER Immediate danger, resulting in death or serious injury.

WARNING Possible immediate danger, which can lead to death or serious injuries.

CAUTION Possible immediate danger, which can result in slight injuries or material damage.

NOTE Information relating to safety and protection of property.

4. Important operating instructions for all products

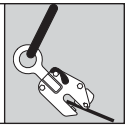
4.1 Before every single use of the clamps/grabs an inspection is to be carried out. This is to check proper functioning and to detect signs of damage or wear, particularly the welded seams, holes, retaining pins, gripper segments, suspension eyes, and for cracks. Never use any clamps/grabs that are overloaded, damaged, or badly worn. The criteria for wear are shown on our website www.pfeifer.de. Check that all moving parts move easily.

DANGER	A clamp/grab no longer admissible for use (e. g. cracks in supporting structures) can lead to failure and **crash of the load.**	

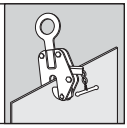
4.2 Note the lifting capacity and the gripping range (shown on the specification plate). Never overload clamps. If the specification plate is lost or illegible, stop using the clamp until it has been identified and labelled again.

DANGER	An overloaded clamp/grab (e. g. lifting of 1,300 kg with a 1-ton clamp) or the wrong gripping range can lead to failure and **crash of the load.**	

4.3 Always use the clamp/grab corresponding to the purpose of use carefully and as intended (see applications table). Also verify the lifting capacity of the used lifting sling. Don't use clamps with non positive locking with high lifting capacities for loads with only a low weight. The weight of the load must be equal to at least 10 percent of the rated lifting capacity of vertical lift or sheet turnover clamps.

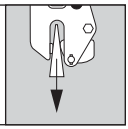
DANGER	Using a non-appropriate clamp or tackling loads less than 10% of the rated capacity (SWL – only with clamps) can lead to failure/ **crash of the load.**	

4.4 Never transport the load with open clamp or grab safety locks. Never put a safety lock out of action.

DANGER	Transporting loads with the clamp/grab lock open can lead to **crashes of the load** when there is unintentional relief.	

4.5 Position the clamps with non positive locking on the load with a distance of approximately 3 to 5 mm between the back of the jaw and the edge of the load. Otherwise it may happen that the clamps cannot be released when the load has been set down. Position clamps with positive locking so that the inside back of the clamp is in contact with the edge of the load.

4.6 Always attach the clamps at surfaces with parallel faces only. This also excludes attachment of clamps to cylindrical forms.

DANGER	If a clamp is attached to non-parallel faces, the **load can possibly crash.**	

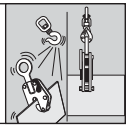
4.7 In order to avoid injury, never reach inside shear or clamping points. The same applies when the safety locking mechanism is activated.

CAUTION	Reaching into the shearing or crusing points of clamps/grabs (e. g. with a rail grab) can lead to **contusions** and **loss of fingers or the complete hand.**	

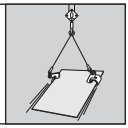
4.8 Always attach clamps/grabs at the centre of gravity of the load (re-attach if necessary). Avoid inclined suspended loads at all times.

DANGER	If the load is not attached in the centre of gravity, it can oscillate and **damage machinery or equipment** or **injure persons** standing nearby. In worst case, the **load can crash.**	

4.9 Never engage clamps/grabs directly into crane hooks but connect them via a suitable lifting sling. If a lifting sling with hook is used, don't use it unless it has a locking mechanism. Connect the clamps/grabs with the lifting shackle to the load hook.

DANGER	Using load hooks without locking mechanism can lead to **crash of the clamp/grab** and the **load.**	

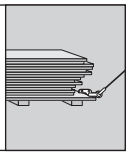
4.10 Employ the number of clamps necessary to stabilise the load. Make sure the load is evenly distributed. For longer loads, we recommend the use of clamp pairs suspended with a two-leg chain sling, or else on a spreader beam. The clamps/grabs employed must all have the same lifting capacity. Attach the clamps/grabs at the centre axis of the clamp.

DANGER	Using too few clamps/grabs or not attaching them in the central axis **can lead to unstable loads and crashing of the load.**	

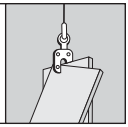
4.11 Avoid swinging, lifting and lowering in jerks or collisions with other objects.

DANGER	Oscillating loads or loads bumping into obstacles can **damage machinery and equipment** or **injure persons** standing nearby. In the worst case, the **load can crash.**

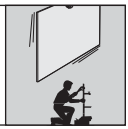
4.12 Never pull sheets from the bottom of a stack. Never pull away jammed loads or clamps/grabs with force.

WARNING	If a sheet is pulled out from the bottom of a stack, the **stack can get instable** (slide/collapse) or the sheet/clamp/grab can **release with a jerk.**	

4.13 Only lift individual loads (steel sheets, girders, rails, etc.) with vertical lifting clamps/grabs.

DANGER	When ligting more than one load at a time, the surplus load or all the single loads cannot be clamped safely and **can fall out.**	

4.14 Never transport anything hurriedly. Never stand in the danger zone. Never lift loads over persons or over safety areas.

DANGER	Dynamic forces generated due to nasty transport can lead to the **load falling out.**	

4.15 Never open or remove clamps/grabs until the load is in a stable resting position.

WARNING	Loads not set down in stable positions **can topple** and thus **severely injure persons** or **damage machinery and equipment.**

4.16 Unauthorized modifications to clamps/grabs are prohibited. This includes grinding, welding, and attaching parts.

DANGER	Damaged clamps/grabs must only be **tested by experts** and **be repaired by the manufacturer** only. If clamps/grabs are repaired by the customer himelf, they are only allowed to use **original spare parts.**

4.17 Clamps with toothed gripping elements penetrate the surface of the load by a micro positive locking. If the marks of the gripping elements are no longer clearly visible and sharp-edged, or if skidding marks appear on the load, a lifting equipment expert must be asked to examine the clamp. Wear criteria are depicted on our website www.pfeifer.de.

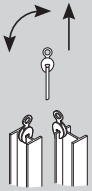
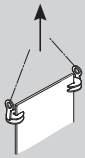
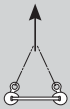
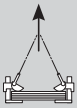
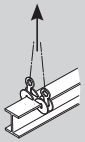
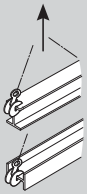
DANGER	The load cannot be clamped safely with damaged or worn gripping elements. They must be exchanged by original spare parts immediately.	

4.18 Clamps/grabs must be inspected at intervals of at the most one year by a lifting equipment expert. If the clamps/grabs are being subjected to very heavy wear the expert will set shorter inspection intervals. An expert has to carry out the inspection and maintenance on the clamps/grabs either on site or in our premises. We offer original spare parts from PFEIFER-RENFROE, or PFEIFER to repair our clamps/grabs.

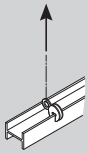
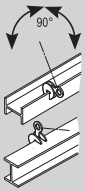
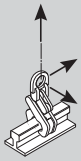
Only the use of original spare parts in accordance with their intended purpose will guarantee the functionality of the clamps/grabs. Please consult the graphic illustrations in the relevant spare parts lists to identify the clamp spare parts exactly. The spare part list as well as the Inspection plans can be downloaded from our website www.pfeifer.de.

4.19 PFEIFER grants you a three-year warranty period (except wearing parts).

5. Application table

	vertical lifting 90° turning	vertical lifting 180° turning	lateral attachment vertical lifting	horizontal transport of sheets	horizontal transport of sheets and sheet stacks	horizontal transport of standing girders	horizontal transport lateral attached girders
							
G2	✘						
MPC 1, MPC 2 CA, CS	✘	✘	✘				
MPS 1, MPS 2	✘	✘					
SCP	✘	✘					
SCPA	✘	✘	✘				
H				✘	✘		
WHS				✘	✘		
M, M2				✘	✘	✘	✘
ASTS, AST, ASTL							
NM, SP	✘						
B 1, B 2							
300 S							
SZ, SZA							
RPZ							
PSZ							

English EN

horizontal transport of lying girders vertical attachment 	horizontal transport of lying girders 	girders 90° turning 	fixed suspension eye overhead girders 	vertical lifting of metal drums with or without lid 	rod and bars lifting 	rails lifting pull lengthwise and crosswise 	girders and profiles lifting 
✘		✘					
✘		✘					
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	✘	✘					
			✘				
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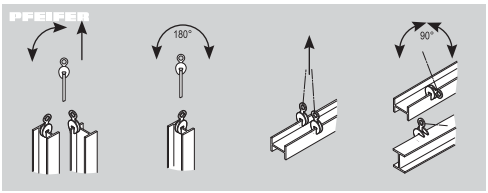
6. Model informations

6.1 MPS 1/MPS 2 models



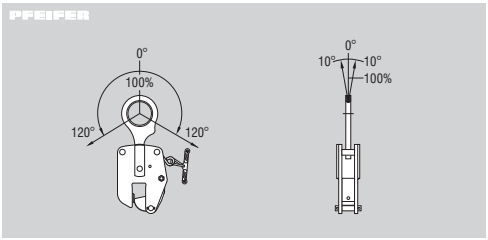
The MPS 1/MPS 2 models are admissible for above applications. Please consult the PFEIFER product management for any different conditions of use.

General conditions of use

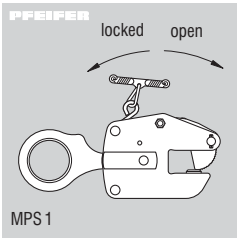
- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The clamp must not be used for any other dimensions.
- The maximum surface hardness of the load is 300 HB (approx. 32 HRC), equivalent to 1,000 N/mm² tensile strength. Special gripping elements for load hardnesses up to 450 HB (47 HRC) are available for this model.
- Temperature range from –20° C to +100° C (ambient and load temperatures).

Permissible attachment angles

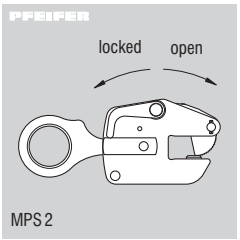
The lifting capacity (e. g.: 100 %) corresponds to the lifting capacity of the clamp. Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind!



Safety mechanisms



Safety mechanism „lock closed“ feature



Safety mechanism „lock open“ and „lock closed“ feature

LOCKED: The spring tension operates on the gripping cam and the clamp holds tight after locking on the load.

OPEN: The spring is released. When the lifting shackle is pushed into the body of the clamp the gripping cam pivots backwards into the clamp body.

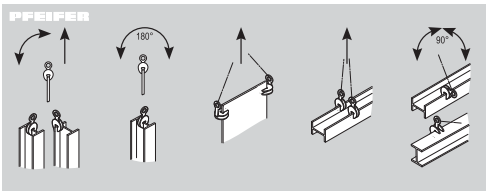
LOCKED: The spring tension operates on the gripping cam and the clamp holds tight after locking on the load.

OPEN: The gripping cam pivots backwards into the clamp body and locks into place in order to enable attachment and removal of the clamp from the load by crane.

Before turning operations the safety mechanism must always be attached on top of the sheet, which is lying flat. In order to be able to remove the clamp after 180° turning operations, there must be sufficient free space, e. g. by use of timber strips.

When loads are attached laterally, e. g. at the side of a sheet, it is important to mind the pulling angle! In any case the swivel jaw and the gripping cam must be fully engaged to the load. This is to ensure a safe operation away from the load edge and to prevent the clamp from slipping.

6.2 MPC 1/MPC 2 models



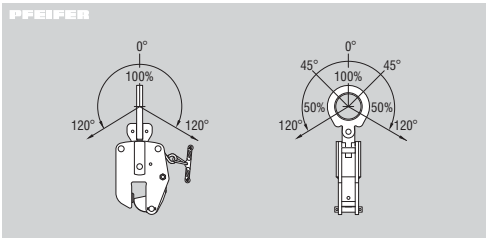
The MPC 1/MPC 2 models are admissible for above applications. Please consult the PFEIFER product management for any different conditions of use.

General conditions of use

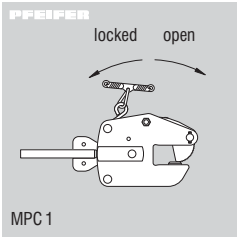
- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The clamp must not be used for any other dimensions.
- The maximum surface hardness of the load is 300 HB (approx. 32 HRC), equivalent to 1,000 N/mm² tensile strength. Special gripping elements for load hardnesses up to 450 HB (47 HRC) are available for this model.
- Temperature range from –20° C to +100° C (ambient and load temperatures).

Permissible attachment angles

The lifting capacity (e. g.: 100 %) corresponds to the lifting capacity of the clamp. Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind!



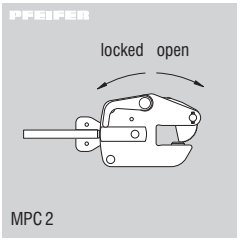
Safety mechanisms



Safety mechanism „lock closed" feature

LOCKED: The spring tension operates on the gripping cam and the clamp holds tight after locking on the load.

OPEN: The spring is released. When the lifting shackle is pushed into the body of the clamp the gripping cam pivots backwards into the clamp body.



Safety mechanism „lock open" and „lock closed" feature

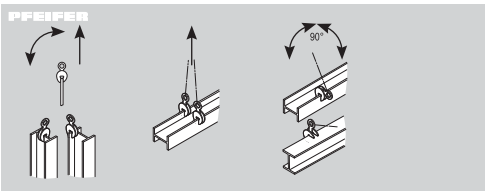
LOCKED: The spring tension operates on the gripping cam and the clamp holds tight after locking on the load.

OPEN: The gripping cam pivots backwards into the clamp body and locks into place in order to enable attachment and removal of the clamp from the load by crane.

Before turning operations the safety mechanism must always be attached on top of the sheet, which is lying flat. In order to be able to remove the clamp after 180° turning operations, sufficient free space must be given, e. g. by use of timber strips.

When loads are attached laterally, e. g. at the side of a sheet, it is important to mind the pulling angle! In any case the swivel jaw and the gripping cam must be fully engaged to the load. This is to ensure a safe operation away from the load edge and to prevent the clamp from slipping.

6.3 Model G 2



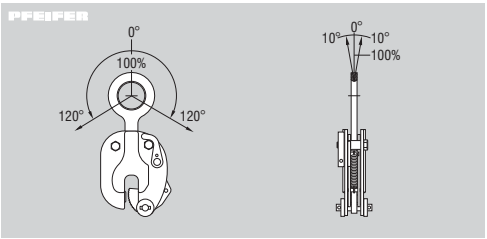
The G 2 model is admissible for above applications. Please consult the PFEIFER product management for any different conditions of use.

General conditions of use

- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The clamp must not be used for any other dimensions.
- The maximum surface hardness of the load is 300 HB (approx. 32 HRC), equivalent to 1,000 N/mm² tensile strength.
- Temperature range from –20° C to +100° C (ambient and load temperatures).

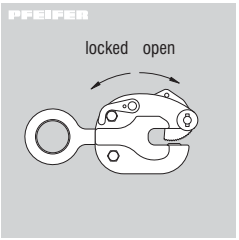
Permissible attachment angle

The lifting capacity (e. g.: 100 %) corresponds to the lifting capacity of the clamp. Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind!



The model G 2 is equipped with rollers from 10 tons lifting capacity and above. This is to assist in moving the clamp on the ground.

Safety mechanism

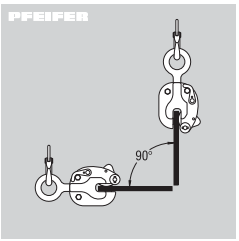


Safety mechanism „lock open“ and „lock closed“ feature

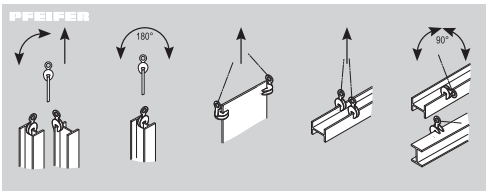
LOCKED: The spring tension operates on the gripping cam and the clamp holds tight after locking on the load.

OPEN: The gripping cam pivots backwards into the clamp body and locks into place in order to enable attachment and removal of the clamp from the load by crane.

Before turning operations the safety mechanism must always be attached on top of the sheet, which is lying flat.



6.4 Model CS



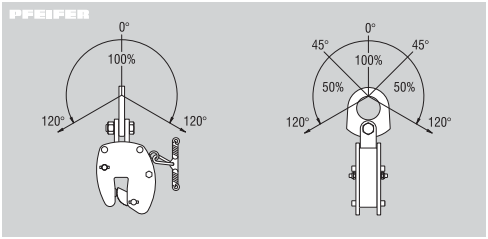
The CS model is admissible for above applications. Please consult the PFEIFER product management for any different conditions of use.

General conditions of use

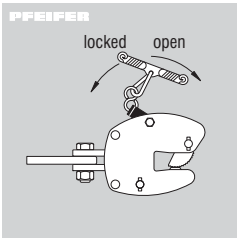
- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The clamp must not be used for any other dimensions.
- The maximum surface hardness of the load is 300 HB (approx. 32 HRC), equivalent to 1,000 N/mm² tensile strength.
- Temperature range from –20 ° C to +100 ° C (ambient and load temperatures).

Permissible attachment angle

The lifting capacity (e. g.: 100 %) corresponds to the lifting capacity of the clamp. Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind!



Safety mechanism



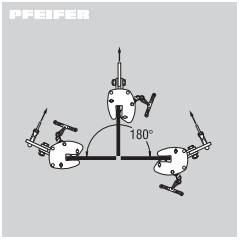
Safety mechanism „lock closed“ feature

LOCKED: The spring tension operates on the gripping cam and the clamp holds tight after locking on the load.

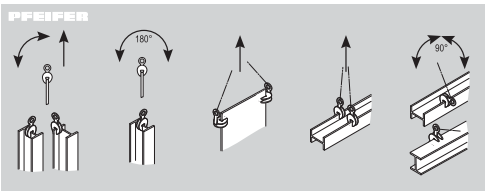
OPEN: The spring is released. When the lifting shackle is pushed into the body of the clamp the gripping cam pivots bakkwards into the clamp body.

Before turning operations the safety mechanism must always be attached on top of the sheet, which is lying flat. In order to be able to remove the clamp after 180° turning operations, there must be sufficient free space, e. g. by use of timber strips.

When loads are attached laterally, e. g. at the side of a sheet, it is important to mind the pulling angle! In any case the swivel jaw and the gripping cam must be fully engaged to the load. This is to ensure a safe operation away from the load edge and to prevent the clamp from slipping.



6.5 Model CA



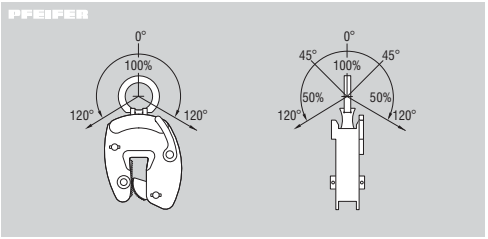
The CA model is admissible for above applications. Please consult the PFEIFER product management for any different conditions of use.

General conditions of use

- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The clamp must not be used for any other dimensions.
- The maximum surface hardness of the load is 300 HB (approx. 32 HRC), equivalent to 1,000 N/mm² tensile strength.
- Temperature range from –20° C to +100° C (ambient and load temperatures).

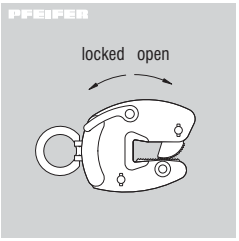
Permissible attachment angle

The lifting capacity (e. g.: 100 %) corresponds to the lifting capacity of the clamp. Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind!



The large cam jaw is designed for the pressure distribution over a wide area and ensures a particularly gentle load transport. The CA model is thus especially suitable for thin sheets.

Safety mechanism



Safety mechanism „lock open“ and „lock closed“ feature

LOCKED: The spring tension operates on the gripping cam and the clamp holds tight after locking on the load.

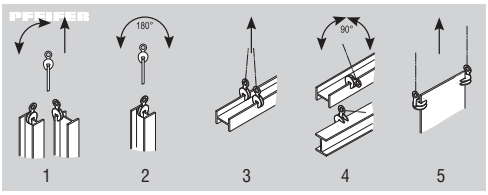
OPEN: The gripping cam pivots backwards into the clamp body and locks into place in order to enable attachment and removal of the clamp from the load by crane.

Before turning operations the safety mechanism must always be attached on top of the sheet, which is lying flat. In order to be able to remove the clamp after 180° turning operations, there must be sufficient free space, e. g. by use of timber strips.

When loads are attached laterally, e. g. at the side of a sheet, it is important to mind the pulling angle! In any case the swivel jaw and the gripping cam must be fully engaged to the load. This is to ensure a safe operation away from the load edge and to prevent the clamp from slipping.

English EN

6.6 SCP and SCPA models



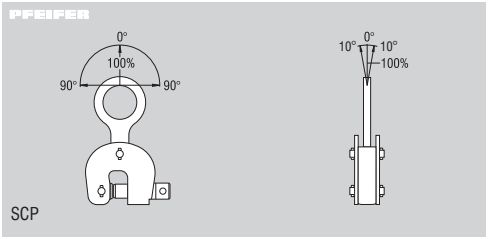
The SCP and SCPA models are admissible for the applications 1 to 4. The model SCPA is also admissible for the application 5, if a spreader beam is used that ensures a straight pull upwards. Please consult the PFEIFER product management for any different conditions of use.

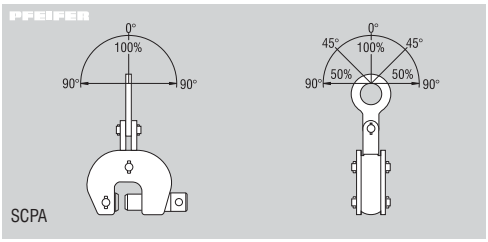
General conditions of use

- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The clamp must not be used for any other dimensions.
- The maximum surface hardness of the load is 300 HB (approx. 32 HRC), equivalent to 1,000 N/mm² tensile strength.
- Temperature range from –20° C to +100° C (ambient and load temperatures).

Permissible attachment angle

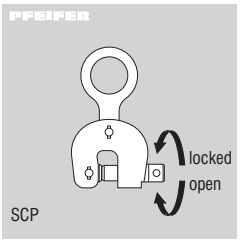
The lifting capacity (e. g.: 100 %) corresponds to the lifting capacity of the clamp. Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind!

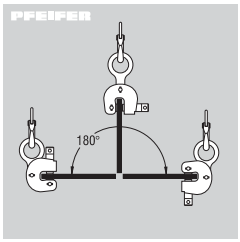




Safety mechanism

The clamping jaws are closed and opened manually by operating the adjusting screw (check that the screw moves easily).





The following table shows the necessary tightening torques.

Lifting capacity tons	Force required with 30 cm lever N	Force required with 60 cm lever N
0,5	117	–
1,5	117	–
3	137	–
6	343	196
10	755	431
15	–	640

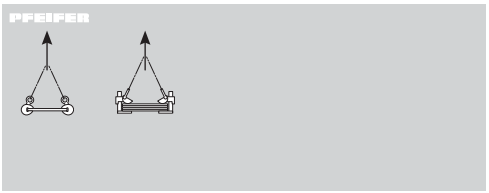
CAUTION! When girders are being transported the adjusting screw has to be easily accessible so that it can be tightened in accordance with regulations. See table above.

The models with SWL 10 tons and 15 tons must regularly be re-greased at the lubricating nipples with standard grease.

6.7 Models H and WHS


H


WHS



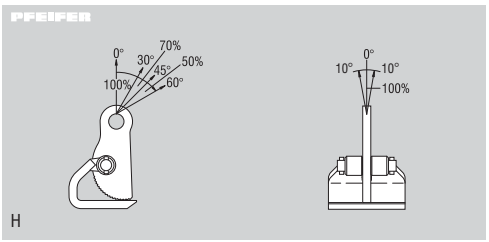
The H and WHS models are admissible for above applications. Please consult the PFEIFER product management for any different conditions of use.

General conditions of use

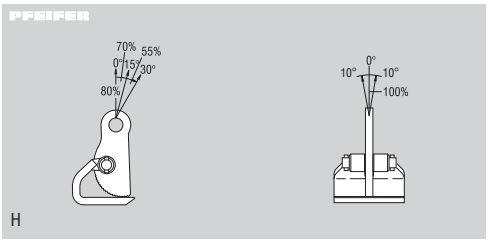
- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The clamp must not be used for any other dimensions.
- The maximum surface hardness of the load is 300 HB (approx. 32 HRC), equivalent to 1,000 N/mm² tensile strength.
- Temperature range from –20° C to +100° C (ambient and load temperatures).

Permissible attachment angle

The lifting capacity (e. g.: 100 %) corresponds to the lifting capacity of the clamp. Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind!

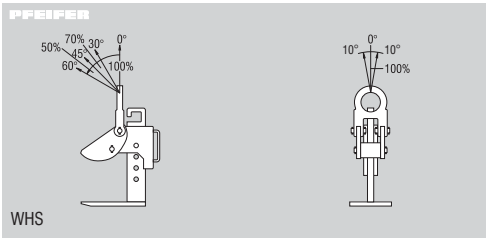


H

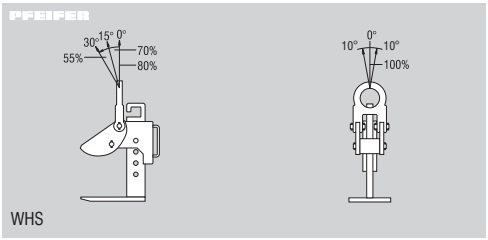


H

With sling suspension with reeved ropes (please see fig. 2)



WHS



WHS

With sling suspension with reeved ropes (please see fig. 2)

When loads are being suspended by multiple slings, the permissible load depends on the suspension angles in each case (see figs. 1 and 2 and Tables 1 and 2). All horizontal clamps attached to the load must have the same lifting capacity and the same gripping range.

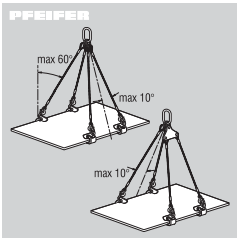


Fig. 1

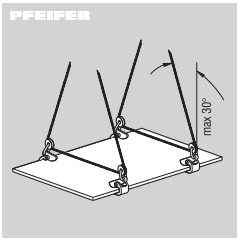


Fig. 2

Lifting capacity table 1 for models H and WHS at different angles of sling suspension.

Nominal capacity (SWL) in tons per lifting clamp	Nominal capacity (SWL) in tons per lifting clamp in inclination angle		
	30°	Up to an angle of 45°	Up to an angle of 60°
0,25	0,25	0,18	0,12
0,50	0,50	0,35	0,25
0,75	0,75	0,53	0,38
1,00	1,00	0,70	0,50
1,50	1,50	1,05	0,75
3,00	3,00	2,10	1,50
4,00	4,00	2,80	2,00
6,00	6,00	4,20	3,00
8,00	8,00	5,60	4,00

Lifting capacity table 2 for models H and WHS at different angles of sling suspension with reeved ropes (see Fig. 2)

Nominal capacity (SWL) in tons per lifting clamp	Nominal capacity (SWL) in tons per lifting clamp in inclination angle		
	0°	Up to an angle of 15°	Up to an angle of 30°
0,25	0,20	0,18	0,14
0,50	0,41	0,35	0,29
0,75	0,61	0,53	0,43
1,00	0,82	0,70	0,58
1,50	1,22	1,06	0,87
3,00	2,45	2,11	1,73
4,00	3,27	2,82	2,31
6,00	4,90	4,23	3,46
8,00	6,53	5,64	4,62

Angles of sling suspension greater than 30° with reeved ropes are not admissible. Reeving with a chain sling is also not admissible, and absolutely must be avoided (Fig. 2).

Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind!

At least three clamps must be attached for the horizontal transport of metal sheets. To ensure that all suspension slings are evenly loaded, a compensating rocker may be necessary in case of a four-sling suspension. This depends on the state of the load. In all sling suspension applications the attachment points of the individual slings must lie above the centre of gravity of the load. Sheets and sheet stacks must be selfstable, i.e. they must not be allowed to sag.

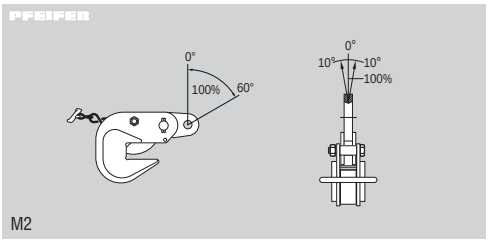
Safety mechanism

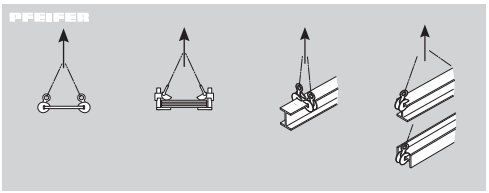
There is no safety mechanism on the H or the WHS clamps. When they are being attached to the load it is therefore important to ensure that the clamps are accurately positioned. During the lifting process the clamps absolutely must not be released.

Clamps without a safety mechanism must not be employed on moving fork lift trucks or mobile cranes, etc.

For reasons of safety the gripping cams must always be in contact with the load, i. e. bite in.

6.8 Model M and M2





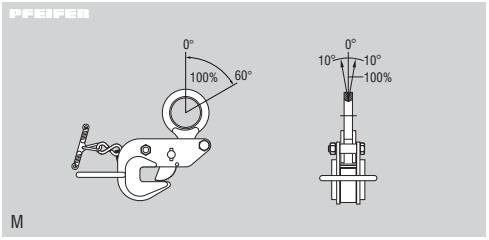
The M and M2 models are approved for the above applications. Please consult the PFEIFER product management for any different conditions of use.

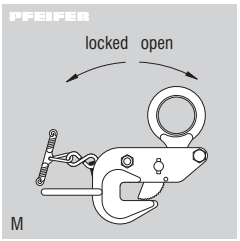
General conditions of use

- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The clamp must not be used for any other dimensions.
- The maximum surface hardness of the load is 300 HB (approx. 32 HRC), equivalent to 1000 N/mm² tensile strength.
- Temperature range from –20° C to +100° C (ambient and load temperatures).
- The M2 model is also suitable for light, sagging sheet metals.

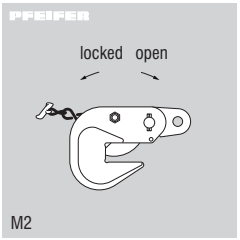
Permissible attachment angle

The lifting capacity (e. g.: 100 %) corresponds to the lifting capacity of the clamp. Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind! An optimum balance of force is achieved with a recommended suspension angle of 30°!





Safety mechanism „lock closed“ feature



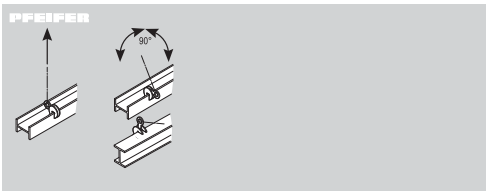
Safety mechanism „lock closed“ feature similar to M model

Safety mechanism

LOCKED: The spring tension operates on the gripping cam and the clamp holds tight after locking on the load.

OPEN: The spring is released. When the lifting shackle is pushed into the body of the clamp the gripping cam pivots backwards into the clamp body.

6.9 Models AST/ASTL and ASTS



The AST/ASTL and ASTS models are admissible for above applications. Please consult the PFEIFER product management for any different conditions of use.

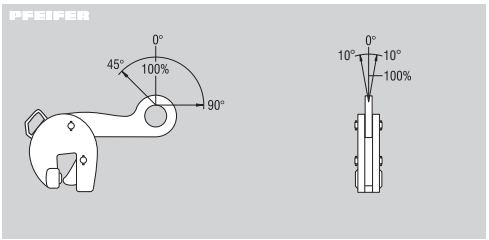
General conditions of use

- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The clamp must not be used for any other dimensions.
- The maximum surface hardness of the load is 300 HB (approx. 32 HRC), equivalent to 1,000 N/mm² tensile strength.
- Temperature range from –20° C to +100° C (ambient and load temperatures).

Permissible attachment angle

AST/ASTL and ASTS clamps are only admissible for the horizontal transport of girders close to the ground!

AST/ASTL and ASTS clamps permit a girder to be lifted with the flange in a nearly horizontal position in both directions. When placing the lifting shackle outside the



girder, turning operations of the girder are possible. The ASTL model is fitted with an additional joint in the suspension so that the clamp can be locked in the open position. Thus attachment and removal of the clamp are easily possible.

Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind!

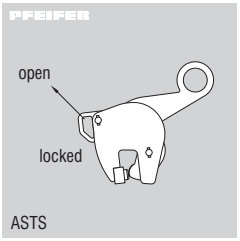
Because of the lack of a safety mechanism the AST and ASTL models are no longer admissible under EN 13155 since 1st January 2004. Older models are admissible as long as they are in use.

Safety mechanism

There is no safety mechanism on the AST or the ASTL clamps.

When they are being attached to the load it is therefore important to ensure that the clamps are accurately positioned. During the lifting process the clamps absolutely must not be released.

Clamps without a safety mechanism must not be employed on moving fork lift trucks or mobile cranes, etc.



The ASTS safety mechanism tightens itself automatically.

LOCKED: The spring tension operates on the safety cam. Thus the clamping force is applied to the shackle, and this in turn operates on the gripping cam. If the clamp is now being lifted with the shackle, it holds tight to the safety cam by friction on the curve discs and the shackle and the gripping cam to the load. When the clamp is release the full clamping force is still applied.

OPEN: When the safety cam is pulled upwards manually the friction created by the spring tension is released.

6.10 Model NM

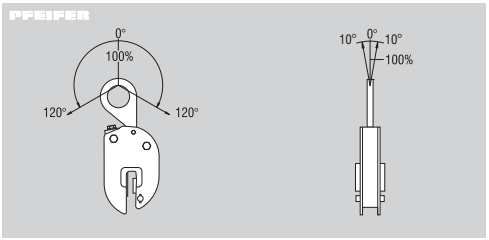
The NM model is admissible for above applications. Please consult the PFEIFER product management for any different conditions of use.

General conditions of use

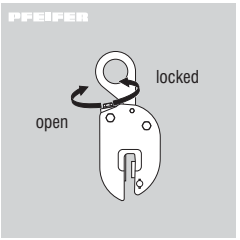
- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The clamp must not be used for any other dimensions.
- The load surfaces must be dry and free of coatings, mill roll scale, dirt, lubricants, etc.
- Temperature range from –20° C to +100° C (ambient and load temperatures).
- Clamp with large, smooth pressure plates (gripping elements) for loads with sensitive surfaces or very hard loads.
- The NM model is also available with stainless steel gripping elements.

Permissible attachment angle

The lifting capacity (e. g.: 100 %) corresponds to the lifting capacity of the clamp. Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind!



Safety mechanism



The gripping elements are closed and opened manually by operating the wedge screw (check that the screw moves easily).

The wedge screw must always be at the bottom (facing the floor) when the clamp is being attached to a horizontally positioned sheet.

Push the lifting shackle completely into the body of the clamp before tightening the wedge screw. Tighten the wedge screw until both gripping elements are positioned parallel to the load, and then give it another ¾-turn with a wrench. Ensure that the clamp is firmly attached. The pressure surfaces of the gripping elements and the load surface must be dry and free of coatings, mill roll scale, dirt, lubricants, etc.

CAUTION! For longer loads we recommend using at least two clamps in a sling or at a spreader beam.

6.11 Model SP

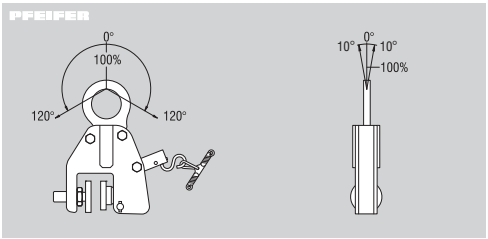
The SP model is admissible for above applications. Please consult the PFEIFER product management for any different conditions of use.

General conditions of use

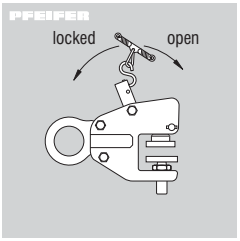
- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The clamp must not be used for any other dimensions.
- The load surfaces must be dry and free of coatings, mill roll scale, dirt, lubricants, etc.
- Clamp for load materials with sensitive surfaces, such as stainless steel (not with a polished surface), plastic, plywood, etc.
- Temperature range from –20° C to +100° C (ambient and load temperatures).
- Clamp with large, smooth pressure pads (gripping elements) for loads with sensitive surfaces or very hard loads.

Permissible attachment angle

The lifting capacity (e. g.: 100 %) corresponds to the lifting capacity of the clamp. Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind!



Safety mechanism



Safety mechanism „lock closed" feature with adjusting screw.

The gripping elements (pads) are closed and opened manually by operating the adjusting screw (check that the screw moves easily).

The gripping elements are adjusted to the thickness of the load when the clamp is open. The adjustable gripping element is adjusted to the thickness of the load +1 to +2 mm and fixed with a lock nut. When the safety mechanism is closed, ensure that the clamp is firmly attached. New load thicknesses will definitely require the clamp width to be re-adjusted.

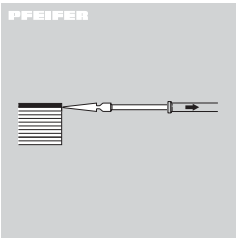
The gripping elements (pads) and load surfaces must be dry and free of coatings, mill roll scale, dirt, lubricants, etc.

The gripping elements (pads) must be whetted with an abrasive paper (grain size 60) or a file. This must be carried out every day before the clamp is first used.

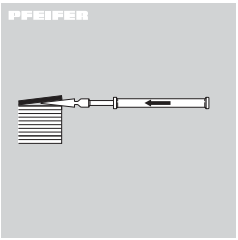
CAUTION! For longer loads we **urgently** recommend using at least two clamps in a sling or at a spreader beam.

6.12 Pry bar

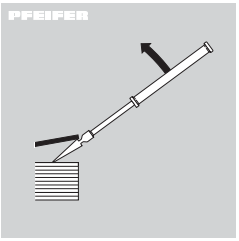
Tool to separate steel sheets stacked without gaps (in preparation for the attachment of clamps)



Set the tip of the pry bar at the required position and pull out the telescope tube. Watch your hand! To position the tool exactly, put your hand only in the area that is **not** covered by the telescope tube.

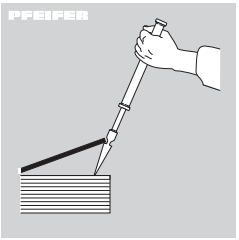


Drive the pry bar between the sheets with heavy blows onto the telescope tube handle. Carry on until the barbed wedge is fully inside the stack.



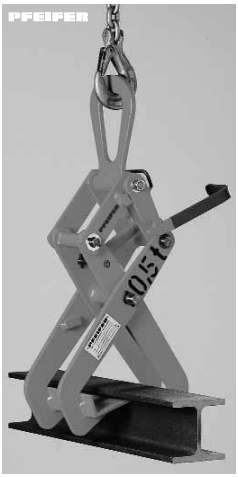
The extended tube results in a long leverage arm and thus also enables heavy sheets to be lifted by the full length of the wedge.

The sheet rests on the barb of the wedge, and in this position lifting clamps can be attached easily. Always keep a tight hold on the pry bar while this is being done.



When the pry bar is transported for safety reasons the tip must always be hold in an upright position. Otherwise the wedge might fall downwards out of the tube of its own accord.

6.13 PSZ model (section grab)



The PSZ model is admissible for the horizontal transport of double-flange sections and flat materials of all kinds. Please consult the PFEIFER product management for any different conditions of use.

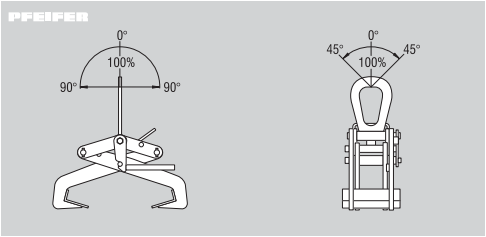
General conditions of use

- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The grab must not be used for any other dimensions.
- Mechanically operating grab for the positive locked transport of loads.
- Temperature range from –20° C to +100° C (ambient and load temperatures).

(For sensitive loads the gripping arms are available with a plastic or rubber protective covering)

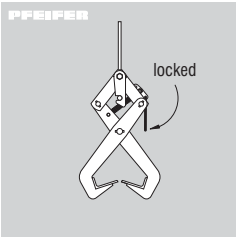
Permissible attachment angle

The lifting capacity (e. g.: 100 %) corresponds to the lifting capacity of the grab. Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind!



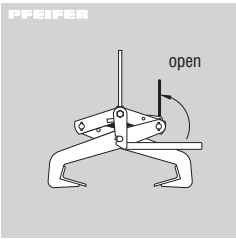
Safety mechanism

Spring-loaded safety lock with a securing handle against unintentional opening when the load is being released during transport.



LOCKED: The spring tension operates on the gripping arms and the grab holds tight after locking on the load.

OPEN: The spring is released and thus the gripping arms are released and are ready to open.



NOTE: When the spring is released, take care of your fingers and hands. Possible danger resulting in hitting or crushing!

When the grab is open it can be locked with the hold-open lever so that the load can be attached more easily.

6.14 Models SZ (rail grab, manual) and SZA (rail grab, semi-automatic)

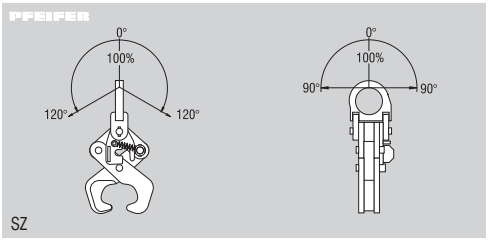
The SZ and SZA are admissible for the lifting of rails. Diagonal and longitudinal pulls are also admissible. Please consult the PFEIFER product management for any different conditions of use.

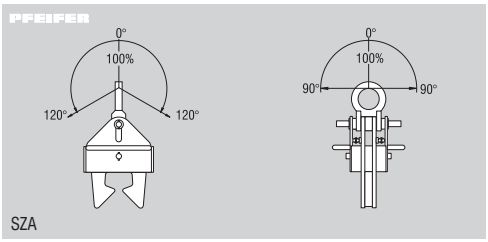
General conditions of use

- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The grab must not be used for any other dimensions.
- Mechanically operating grab for the positive locked transport of loads.
- Admissible for rail sizes S49, S54, S60s and UIC 60.
- Temperature range from –20° C to +100° C (ambient and load temperatures).

Permissible attachment angle

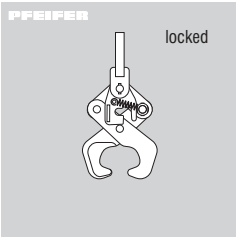
The lifting capacity (e. g.: 100 %) corresponds to the lifting capacity of the grab. Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind!





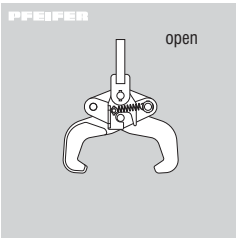
SZ safety mechanism

Safety mechanism with double function: for „hold-open“ and „lock closed“. The lock closed function provides safe gripping even if the rail is overturning - i. e. the grab never lets go unintentionally.



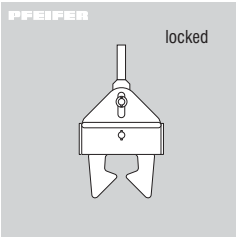
LOCKED: The spring tension operates on the blokking lever, which is locked against the lower bolt pin.

OPEN: Open the blocking lever against the spring tension and notch it in over the lower bolt pin. The grab is thus locked in the open position and can be lifted or attached more easily to the next rail.



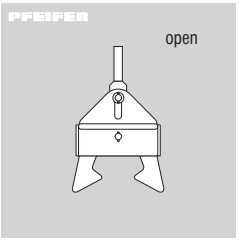
SZA safety mechanism

Automatical safety mechanism operating when attaching to the load.



LOCKED: The spring tension operates on the gripping arms. The grab holds tight after attaching to the load.

OPEN: By pressing the palms of both hands on the upper bolt pins while holding the green handles with the fingers the grab will open against the tension of the springs.



6.15 Model RPZ (Rod and bar grab)

The RPZ model is admissible for the horizontal transport of round materials of all kinds. Please consult the PFEIFER product management for any different conditions of use.

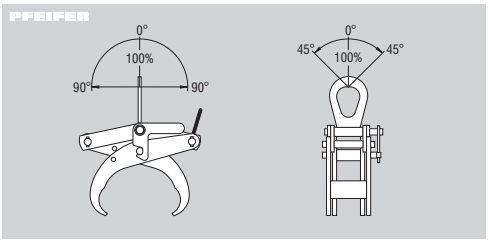
General conditions of use

- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The grab must not be used for any other dimensions.
- Mechanically operating grab for the positive locked transport of loads.
- Temperature range from –20° C to +100° C (ambient and load temperatures).

(For sensitive loads the gripping arms are available with a plastic or rubber protective covering).

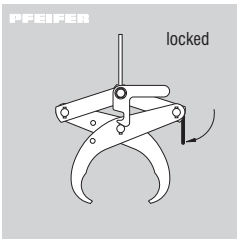
Permissible attachment angle

The lifting capacity (e. g.: 100 %) corresponds to the lifting capacity of the grab. Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind!



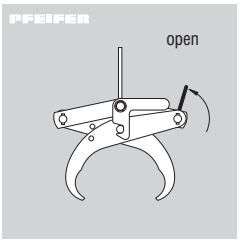
Safety mechanism

Spring-loaded safety lock with a securing handle against unintentional opening when the load is being released during transport.



LOCKED: The spring tension operates on the gripping arms and the grab holds tight after locking on the load.

OPEN: The spring is released and thus the gripping arms are released and are ready to open.



NOTE! When the spring is released, take care of your fingers and hands. Possible danger resulting in hitting or crushing!

When the grab is open it can be locked with the hold-open lever so that the load can be attached more easily.

For design-related reasons, the grabs with the part nos. 114040 and 114049 are supplied without a safety device.

6.16 Models B 1 and B 2

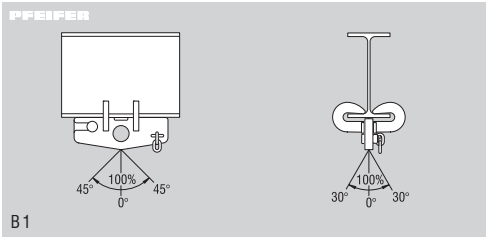
The B1 and B2 models are admissible for the above applications. Please consult the PFEIFER product management for any different conditions of use.

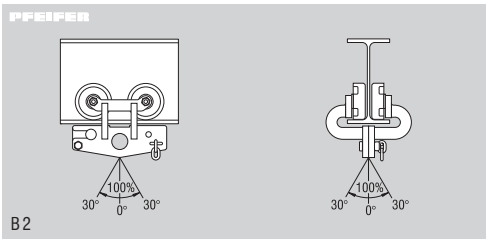
General conditions of use

- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The clamp must not be used for any other dimensions.
- Temperature range from –20° C to +100° C (ambient and load temperatures).

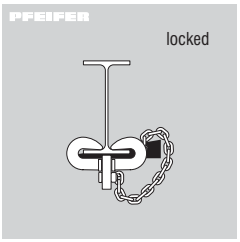
Permissible attachment angle

The lifting capacity (e. g.: 100 %) corresponds to the lifting capacity of the clamp. Pulling at an angle results in stronger forces especially in the lifting sling used. Please mind!

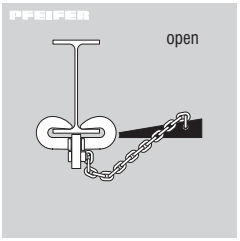




Safety mechanism



Fluted gripping surfaces contacting beam!



Fluted gripping surfaces contacting beam!

These clamp models are only admissible for use as a fastening clamp (B 1) or moveable fastening clamp (B 2) for various kinds of lifting equipment used for assembly work on permanently installed girders.

Care must be taken to ensure that the two side parts are assembled accurately. The two side plates have to be fastened firmly with safety bolts in the drilled holes provided. Insert the steel wedge between the girder and the clamp body with the fluted side in contact with the girder. Now drive the wedge in with a hammer so that it cannot slip.

IMPORTANT: Hammer the wedge in further if necessary after the load has been lifted. Make sure the wedge always sits firmly.

English EN

6.17 Model 300 S

The 300 S model is admissible for above applications. Please consult the PFEIFER product management for any different conditions of use.

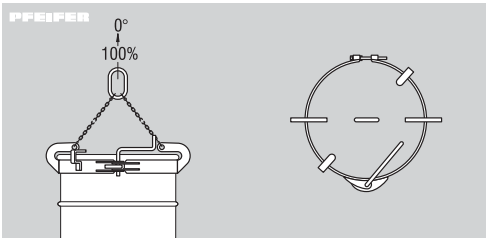
General conditions of use

- The gripping range shown states the minimum and maximum permissible thickness of the load at the attachment point. The drum clamp must not be used for any other dimensions.
- Mechanically operating grab for the positive locked transport of loads.
- Temperature range from –20° C to +100° C (ambient and load temperatures).

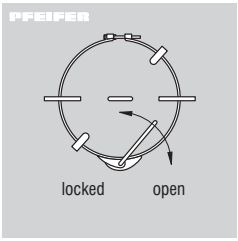
Permissible attachment angle

The lifting capacity (e. g.: 100 %) corresponds to the lifting capacity of the drum clamp.

For upright, inherently stable metal drums and barrels with rims.



Safety mechanism



Adjust the drum diameter with the setting screw and open the suspension ring by swivelling the safety lever anti-clockwise. Attach it on the drum/barrel with the setting bars.

Clamp the suspension ring with the safety lever clockwise after carefully placing it on the **under**side of the bulge (the rim of the barrel). Make sure the drum clamp is positoned in full contact. Remove the drum clamp in the same way but in reverse order.

7. Translation of the Original Declaration of Conformity

We hereby declare that the machinery / equipment designated below complies in its conception and construction, and in the designs that we bring into circulation, with the relevant basic safety and health requirements of the associated EC Directive(s).
This declaration shall void if modifications are made to the machinery / equipment without our approval.

Lifting clamps and grabs from PFEIFER-RENFROE

Type						
	CS	SCP	WHS	AST	B 1	G 2
	CA	SP	M	M 2	ASTL	B 2
	MPC	MC	NM	PSZ	ASTS	300 S
	MPS	SCPA	SZA	SZ	RPZ	pry bar
	H					

Pertaining to the EC Machinery Directive 2006/42/EC Appendix II 1A

Applied european/national standards:

DIN EN 13155, DIN EN ISO 12100-2
DIN 15428, BGR 500 Chapter 2.8, BGI 556

Applied international standards:

Australian Standard AS 4991-2004
US standard ASME B30.20

Representative for collection of the technical documents:

PFEIFER SEIL- UND HEBETECHNIK GMBH

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TELEFAX +49 (0) 83 31 - 937-375
E-MAIL verkauf-lt@pfeifer.de
INTERNET www.pfeifer.de

The EC Declaration of Conformity was certificated:

Siegmund Erhard
Head of Lifting Technology Division
Memmingen, 01.08.2014

8. Sequential Tests

Product:

Item No.:

Fabricaton No.:

Device Data

Year of Construction:

Lifting Capacity:

Dead Weight:

Gripping Range:

The periodic test acc. to EN 13155 and BGR 500 Chapter 2.8 has been executed.

❒ There were no defects
❒ There were the following defects:

Date and Signature Expert

The periodic test acc. to EN 13155 and BGR 500 Chapter 2.8 has been executed.

❒ There were no defects
❒ There were the following defects:

Date and Signature Expert

The periodic test acc. to EN 13155 and BGR 500 Chapter 2.8 has been executed.

❒ There were no defects
❒ There were the following defects:

Date and Signature Expert

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❒ There were no defects
❒ There were the following defects:

Date and Signature Expert

PFEIFER