Rotary module
CR 25 I CR 32

- Declaration of Incorporation
- Module Information
- Montage Instructions
- Maintenance Instructions

„Translation“ of the Original Montage Instructions
© Copyright by Afag Automation AG
These Montage Instructions apply to:

<table>
<thead>
<tr>
<th>Type</th>
<th>Order No.</th>
<th>Type</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR 25</td>
<td>50254300</td>
<td>CR 32</td>
<td>50254301</td>
</tr>
</tbody>
</table>

Version of this documentation: CR 25-CR 32-OI-vers.2.2 de.21.07.14.doc

Symbols:

- **DANGER**: Indicates an immediate threatening danger. Non-compliance with this information can result in death or serious personal injuries (invalidity).

- **WARNING**: Indicates a possible dangerous situation. Non-compliance with this information can result in death or serious personal injuries (invalidity).

- **CAUTION**: Indicates a possibly dangerous situation. Non-compliance with this information can result in damage to property or light to medium personal injuries.

- **NOTE**: Indicates general notes, useful operator tips and operating recommendations which don't affect safety and health of the personnel.
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The manufacturer: Afag Automation AG, Fiechtenstrasse 32, CH-4950 Huttwil
Tel. 41 62 959 87 02, www.afag.com

As manufacturer of the partly completed machine we declare that:
- The specified machine corresponds to the listed essential requirements of the directive 2006/42/EG, where applicable the other directives and standards listed below.

Product name: Rotary module compact (pneumatic)
Types: CR 25 / CR 32
Consecutive serial: Nr.50xxxxxx

Machinery Directive 2006/42/EG
- The relevant technical documentation is compiled in accordance with part B of Annex VI
- The relevant technical documentation in accordance with part B of Annex VI will be transmitted in response to a reasonable request by the national authorities in printed from or in electronic from (pdf).

Applied and fulfilled essential requirements:
- 1.1; 1.1.1; 1.1.2; 1.2.3; 1.2.4.4; 1.3; 1.3.5; 1.3.6; 1.3.7; 1.3.9; 1.4.1; 1.5; 1.5.3; 1.6; 1.6.1; 1.6.3; 1.6.4; 1.7; 1.7.4; 1.7.4.1; 1.7.4.2
- Increase of the harmonized standards applied:
  - EN 349; EN ISO 12100-1; EN 12100-2 partly fulfilled

This partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of this Directive 2006/42/EC, where appropriate.

Name and address of the person authorised to compile the relevant technical documentation:
Lanz Beat, PM & Marketing-services, Afag Automation AG

Place, date: Huttwil, 21. Juli 2014

Siegfried Egli
Head of HT
Afag Automation AG

Markus Werro
Managing Director
Afag Automation AG
2.0.0 Module Information
2.1.0 Transport and Storage (Packing and unpacking)

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care with pack and talk rotary module. With the unadvised contact (allow to fall module) a foot can be squeezed one or be damaged.</td>
</tr>
</tbody>
</table>

The transport occurs in the transport packaging of the Afag Automation AG. Afag Automation AG.
If no packaging of the Afag Automation AG is used, must be packed rotary module bump and dust protected.

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>According to type rotary module the weight can amount between 3.2 to 5.3 kg.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider please! With each module security is settled a technical newspaper. This newspaper is to be reas busily by each person with the module.</td>
</tr>
</tbody>
</table>
2.1.1 Installation and fastening possibilities CR - Module

Assembly surfaces and fixing drillings

Assembly from below
2xM8 (grid 60mm)
2xM12 (grid 96mm)

Fixing possibility is at the side only for grow parts intended.

Installation from above, screwed
2xM10

NOTE
Use the centering bushings included in the scope of supply for positioning and insert these bushings in the borings of the mounting grid.
### 2.1.2 Hole matrix and centering bushings

**Hole matrix at the CR 25/32 Rotary module**

<table>
<thead>
<tr>
<th>CR 25</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hole matrix</td>
<td>96 mm</td>
<td>60 mm</td>
</tr>
<tr>
<td>Thread / bore hole (continuous)</td>
<td>2x M10</td>
<td></td>
</tr>
<tr>
<td>Thread / bore hole (from below)</td>
<td>2x M12</td>
<td>2x M8</td>
</tr>
<tr>
<td>Centering bushings (H7)</td>
<td>2x19 mm</td>
<td>2x 12 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CR 32</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hole matrix</td>
<td>96 mm</td>
<td>60 mm</td>
</tr>
<tr>
<td>Thread / bore hole (continuous)</td>
<td>2x M10</td>
<td></td>
</tr>
<tr>
<td>Thread / bore hole (from below)</td>
<td>2x M12</td>
<td>2x M8</td>
</tr>
<tr>
<td>Centering bushings (H7)</td>
<td>2x19 mm</td>
<td>2x 12 mm</td>
</tr>
</tbody>
</table>

**NOTE**

Use the centering bushings included in the scope of supply for positioning and insert these bushings in the borings of the mounting grid.
2.1.3 Tightening torques for bolts

The screw to be used for assembly must at least satisfy the following conditions:

- Standard: VDI 2230
- Strength: Classe 8.8
- Surface: galvanized blue, oiled or greased

<table>
<thead>
<tr>
<th>Thread</th>
<th>M3</th>
<th>1,1 ... 1,4 Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M4</td>
<td>2,6 ... 3,3 Nm</td>
</tr>
<tr>
<td></td>
<td>M5</td>
<td>5,2 ... 6,5 Nm</td>
</tr>
<tr>
<td></td>
<td>M6</td>
<td>9,0 ... 11,3 Nm</td>
</tr>
<tr>
<td></td>
<td>M8</td>
<td>21,6 ... 27,3 Nm</td>
</tr>
<tr>
<td></td>
<td>M10</td>
<td>46,0 ... 49,0 Nm</td>
</tr>
<tr>
<td></td>
<td>M12</td>
<td>70,0 ... 85,0 Nm</td>
</tr>
</tbody>
</table>

This is an incomplete machine

Assembly of the CR Rotary module in a system

The series of the CR Rotary module is used for the linear, smooth movement of rigidly mounted loads under the ambient and Installation conditions defined for this Module see Technical data. The CR Rotary module can be installed in the horizontal or vertical position.

NOTE

These Montage Instructions should be read carefully before carrying out any activity on or with the CR module. The CR module may only be deployed in accordance with the intended use.

NOTE

Safety instructions

Modifications on the CR Rotary module that are not described in these Montage Instructions or have not been approved in writing by Afag Automation AG are not permitted. In case of improper changes or assembly, installation, operation and maintenance or repairs Afag rejects all liability.
2.1.4  Modul load factors CR 25

<table>
<thead>
<tr>
<th>Typ</th>
<th>Type</th>
<th>Type</th>
<th>CR 25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. axial zulässige</td>
<td>Forces axiale max.</td>
<td>Max. axial permitteten</td>
<td>2675 N</td>
</tr>
<tr>
<td>Kräfte (statisch)</td>
<td>autorisés (statique)</td>
<td>forces (static)</td>
<td>800 N</td>
</tr>
<tr>
<td>drückend / ziehend</td>
<td>poussant / tirant</td>
<td>oppressively / sinking</td>
<td></td>
</tr>
<tr>
<td>Max. axial zulässige</td>
<td>Forces axiale max.</td>
<td>Max. axial permitted</td>
<td>430 N</td>
</tr>
<tr>
<td>Kräfte (dynamisch)</td>
<td>autorisés (dynamique)</td>
<td>forces (dynamic)</td>
<td>200 N</td>
</tr>
<tr>
<td>drückend / ziehend</td>
<td>poussant / tirant</td>
<td>oppressively / sinking</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Typ</th>
<th>Type</th>
<th>Type</th>
<th>CR 25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. radiale zulässige</td>
<td>Forces radiale max.</td>
<td>Max. radial permitteten</td>
<td>3635 N</td>
</tr>
<tr>
<td>Kräfte (statisch)</td>
<td>autorisés (statique)</td>
<td>forces (static)</td>
<td></td>
</tr>
<tr>
<td>Max. radiale zulässige</td>
<td>Forces radiale max.</td>
<td>Max. radial permitted</td>
<td>891 N</td>
</tr>
<tr>
<td>Kräfte (dynamisch)</td>
<td>autorisés (dynamique)</td>
<td>forces (dynamic)</td>
<td></td>
</tr>
</tbody>
</table>

Schwenkzeit / Rotation du temps / Rotation time

Messung bei 6 bar: Einbaulage horizontal

180°
2.1.5 Preferred combinations for the CR 25

Beachten Sie die möglichen Anbauflächen der Module zueinander.

Erforderliche Verbindungselemente und das Ständerprogramm finden Sie im Register «Verbindungselemente und Ständerprogramm.»

Note that there might be different mounting positions from one module to another one.

The connection elements required and the range of pedestals are depicted in the «Connection elements and supports/ columns» register.

### Preferred combinations

<table>
<thead>
<tr>
<th>CR 25</th>
<th>VP 142</th>
<th>VP 146</th>
<th>VP 105</th>
<th>SA-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 25</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>LM 32</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>HM 25</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>PMP-c</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>PMP</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>OZ-50</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>OZ-60</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>PEZ-52</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>PEZ-65</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>PEZ-80</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>PEZ-100</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>PDZ-160</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>LE-60</td>
<td>1,2,3</td>
<td>1,2,3</td>
<td>1,2,3</td>
<td>1,2,3</td>
</tr>
<tr>
<td>LE-70</td>
<td>1,2</td>
<td>1,2</td>
<td>1,2</td>
<td>1,2</td>
</tr>
</tbody>
</table>

### Anbauflächen / areas de la montage / mounting areas

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>PMP / PMP-c</td>
<td>SA</td>
<td>OZ</td>
<td>PEZ / PDZ</td>
<td>HM</td>
<td>2</td>
</tr>
</tbody>
</table>

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2.1.6 Module load factors CR 32

**Axial statically**

<table>
<thead>
<tr>
<th>Type</th>
<th>Type</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. axial zulässige Kräfte (statisch) drückend / ziehend</td>
<td>Forces axiale max. autorisés (statique) poussant / tirant</td>
<td>Max. axial permitted forces (static) oppressively / sinking</td>
</tr>
<tr>
<td>Max. axial zulässige Kräfte (dynamisch) drückend / ziehend</td>
<td>Forces axiale max. autorisés (dynamique) poussant / tirant</td>
<td>Max. axial permitted forces (dynamic) oppressively / sinking</td>
</tr>
</tbody>
</table>

**Radial statically**

<table>
<thead>
<tr>
<th>Type</th>
<th>Type</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. radiale zulässige Kräfte (statisch)</td>
<td>Forces radiale max. autorisés (statique)</td>
<td>Max. radial permitted forces (static)</td>
</tr>
<tr>
<td>Max. radiale zulässige Kräfte (dynamisch)</td>
<td>Forces radiale max. autorisés (dynamique)</td>
<td>Max. radial permitted forces (dynamic)</td>
</tr>
</tbody>
</table>

**Schwenkzeit / Rotation du temps / Rotation time**

<table>
<thead>
<tr>
<th>CR 32</th>
</tr>
</thead>
<tbody>
<tr>
<td>2550 N</td>
</tr>
<tr>
<td>1600 N</td>
</tr>
<tr>
<td>252 N</td>
</tr>
<tr>
<td>370 N</td>
</tr>
<tr>
<td>8733 N</td>
</tr>
<tr>
<td>1983 N</td>
</tr>
</tbody>
</table>
2.1.7 Preferred combinations for the CR 32

Beachten Sie die möglichen Anbautagen der Module zueinander.

Noter que les situations de montage peuvent varier d’un module à l’autre.

Note that there might be different mounting positions from one module to another one.

Erforderliche Verbindungselemente und das Ständerprogramm finden Sie im Register: »Verbindungselemente und Ständerprogramm.«

Vous trouverez dans le registre «Eléments de jonction et supports/colonnes» les éléments de jonction nécessaires ainsi que notre gamme de montants.

The connection elements required and the range of pedestals are depicted in the «Connection elements and supports/columns» register.

### Anbauflächen / areas de la montage / mounting areas

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3 2</td>
<td>1</td>
<td>1</td>
<td>1 3 2</td>
<td>1 2 3</td>
<td>2 1 3 1</td>
</tr>
<tr>
<td>PMP / PMP-c</td>
<td>SA</td>
<td>OZ</td>
<td>PEZ / PDZ</td>
<td>HM</td>
<td></td>
</tr>
</tbody>
</table>

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3.0.0 Montage Instructions

3.1.0 These Montage Instructions are valid for:

<table>
<thead>
<tr>
<th>Product name:</th>
<th>Rotary module compact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types:</td>
<td>CR 25</td>
</tr>
<tr>
<td></td>
<td>CR 32</td>
</tr>
<tr>
<td>Sequential series:</td>
<td>No: 50xxxxxx</td>
</tr>
</tbody>
</table>

**This is an incomplete machine**

This partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of this Directive 2006/42/EG, where appropriate.

Name and address of the person authorised to compile the relevant technical documentation: Lanz Beat, PM & Marketing-Services, Afag Automation AG
3.1.1 Symbols
Assembly and initial start-up must be carried out by qualified personnel only and according to these Instructions.

⚠️ CAUTION
- Indicates a possibly dangerous situation.
- Non-compliance with this information can result in damage to property or light to medium personal injuries.

NOTE
- Indicates general notes, useful operator tips and Installation recommendations which don't affect safety and health of the personnel.

3.1.2 General description

This is an incomplete machine
The series of the CR 25 / CR 32 Rotary module is used for the linear, smooth movement of rigidly mounted loads under the ambient and Installation conditions defined see Technical data.

The CR 25 / CR 32 Rotary module can be installed in the horizontal or vertical position modifications on the CR 25 / CR 32 Rotary module that are not described in these Montage Instructions or have not been approved in writing by Afag Automation AG are not permitted. In case of improper changes or assembly, installation
3.1.3 Description of the module

NOTE

The CR is manufactured in accordance with state-of-the-art technology and the acknowledged safety regulations. However, during use, danger to life and limb of the operator or damage to the rotary module and other tangible material could arise.

CAUTION

The CR is designed exclusively for the rotational movement in any required position with a torque of 6.2 Nm for CR 25 and 13.5 Nm for CR 32 which, when handled, do not react in a way which could endanger persons, objects or the environment. Any application beyond this is not appropriate.

The manufacturer accepts no liability for damage resulting from improper use. The risk is borne solely by the user.
3.1.4 Included in the delivery:

<table>
<thead>
<tr>
<th>Quant.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Module</td>
</tr>
<tr>
<td>2</td>
<td>Shock absorber M20x1.5M/103 (CR 25)</td>
</tr>
<tr>
<td>2</td>
<td>Shock absorber M25x1.5M/101 (CR 32)</td>
</tr>
<tr>
<td>2</td>
<td>Centering bushings 19x5.8 mm pro Module</td>
</tr>
<tr>
<td>2</td>
<td>Mounting screw M10x70 mm (CR 25)</td>
</tr>
<tr>
<td>2</td>
<td>Mounting screw M10x80 mm (CR 32)</td>
</tr>
</tbody>
</table>

3.1.5 Intended use

The series of the CR 25/32 rotary Module is used for the rotary movement of rigidly mounted loads under the ambient and Installation conditions defined for this module; see Technical catalogue.

NOTE

These Montage Instructions should be read carefully before carrying out any activity on or with the module.

The module may only be deployed in accordance with the intended use.

Modifications on the module that are not described in these Montage Instructions or have not been approved in writing by Afag are not permitted. In case of improper changes or assembly, installation, operation, maintenance or repairs, Afag rejects all liability.

CAUTION

Connection of compressed air and operation of pneumatic systems may cause unpredictable movements which may result in personal injury or damage to property.

When connecting compressed air for the first time make sure that all air throttles are closed. Aerate the system slowly.
3.1.6 Warranty

The module is designed for 40 million load alternations* under the ambient conditions and conditions of use defined for this module, see catalogue. Wearing parts (shock absorbers and stop screws) are excluded from the warranty. The warranty includes repair or replacement of faulty Afag parts.

*whichever comes first

When repairs are carried out by the customer without prior training or instruction by Afag automation AG the warranty will become void. Any additional claims are excluded.

3.1.7 Areas of application

The CR rotary Module are exclusive for rotations movements for pay load from: (CR25); (4000 kgcm² (CR 32), 10'000 kgcm² certainly. They can also be used in combination with other modules than Pick & Place machines, the permissible load capacities should, however, not be exceeded.

Any other use is regarded as inadequate.

NOTE

The manufacturer does not accept any liability for damage resulting from such use. The risk is that of the user alone.

Intended use also includes paying attention to the Montage Instructions and observing the maintenance and repair Instructions specified by the manufacturer. The CR module may only be operated and serviced by correspondingly trained personnel who have also profound knowledge of the dangers.

CAUTION

The applicable regulations for prevention of accidents and the other generally accepted safety-relevant and occupational safety and health regulations are to be followed.
3.1.8 Dimensions drawing for CR 25

Die gezeichneten Flansch Lochbilder stehen bei allen Modulen in der 0° Stellung. Der Flansch dreht sich somit 100° nach links und 100° nach rechts.

Les gabarits de trous de flasque dessinés sont en position 0° pour tous les modules. La flasque tourne ainsi 100° à gauche et 100° à droite.

The flange holes drawn are at 0° for all the modules. Thus the flange is rotating 100° left and 100° to right.

P = Luftanschlüsse  
Raccords d’air  
Air connectors

P1 = Uhrzeigersinn  
Sens horaire  
Clockwise direction

P2 = Gegenuhrzeigersinn  
Sens inverse horaire  
Counter clockwise direction
### 3.1.9 Technical data of the CR 25

<table>
<thead>
<tr>
<th>Typ</th>
<th>Type</th>
<th>Type</th>
<th>CR 25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bestellnummer</td>
<td>Article No.</td>
<td>Order no.</td>
<td>50254300</td>
</tr>
<tr>
<td>Nenndrehwinkel</td>
<td>Angle de rotation</td>
<td>Rotation angle</td>
<td>0°-180°</td>
</tr>
<tr>
<td>max. Drehwinkel</td>
<td>Angle max. rotation (mechanique)</td>
<td>Max. rotation angle (mechanic)</td>
<td>200°</td>
</tr>
<tr>
<td>(mechanisch)</td>
<td></td>
<td>Torque</td>
<td>6.2 Nm</td>
</tr>
<tr>
<td>Drehmoment</td>
<td>Couple de rotation</td>
<td>Min. rotating time</td>
<td>180° = 0.44 s</td>
</tr>
<tr>
<td>Minimale Drehzeit</td>
<td>Temps de rotation minimal</td>
<td>Position</td>
<td>2</td>
</tr>
<tr>
<td>Positionen</td>
<td>Positions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Betriebsdruck</td>
<td>Pression d'alimentation</td>
<td>Working pressure</td>
<td>6 bar +/-2</td>
</tr>
<tr>
<td>Luftanschluss = P</td>
<td>Raccords d'air = P</td>
<td>Air connectors = P</td>
<td>G 1/8&quot;</td>
</tr>
<tr>
<td>Luftverbrauch (180°)</td>
<td>Consommation d'air (180°)</td>
<td>Air consumption (180°)</td>
<td>0.389 NL</td>
</tr>
<tr>
<td>Einbaulege</td>
<td>Position de montage</td>
<td>Mounting position</td>
<td>+</td>
</tr>
<tr>
<td>Modulgewicht</td>
<td>Poids du module</td>
<td>Weight of module</td>
<td>3.280 kg</td>
</tr>
<tr>
<td>&quot;Massenträgheitsmoment&quot;</td>
<td>&quot;Moment d'inertie de masse&quot;</td>
<td>&quot;Mass moment of inertia&quot;</td>
<td>4000 kgcm²</td>
</tr>
<tr>
<td>Winkelgenauigkeit</td>
<td>Précision angulaire</td>
<td>Angle precision</td>
<td>+/- 0.05°</td>
</tr>
<tr>
<td>Stossdämpfer</td>
<td>Amortisseur</td>
<td>Shock absorber</td>
<td>SD M20x1.5-1</td>
</tr>
<tr>
<td>Lärmpegel bei 6 bar max. Nutzlast</td>
<td>Niveau de bruit à 6 bar sous charge utile max.</td>
<td>Decibel level, at 6 bar</td>
<td>54 dB (A)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>at max. effective weight</td>
<td></td>
</tr>
<tr>
<td>Befestigungsraeder</td>
<td>Trame de fixation</td>
<td>Fixing grid</td>
<td>96 mm</td>
</tr>
<tr>
<td>Befestigungsgewinde (durchgang)</td>
<td>Filet de montage (passage)</td>
<td>Mounting thread (passage)</td>
<td>2 x M10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fixing thread (from below)</td>
<td>2 x M12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2 x M8</td>
</tr>
<tr>
<td>Temperatur:</td>
<td>Température:</td>
<td>Temperature:</td>
<td></td>
</tr>
<tr>
<td>– Lager</td>
<td>– de stockage</td>
<td>– Storage</td>
<td>0°C...+50°C</td>
</tr>
<tr>
<td>– Betrieb</td>
<td>– d’utilisation</td>
<td>– Operation</td>
<td>0°C...+50°C</td>
</tr>
<tr>
<td>– Luftfeuchtigkeit</td>
<td>– Humidité</td>
<td>– Humidity</td>
<td>&lt; 90 %</td>
</tr>
<tr>
<td>nicht kondensierend</td>
<td>sans condensation</td>
<td>non condensing</td>
<td></td>
</tr>
<tr>
<td>Medium:</td>
<td>Fluide:</td>
<td>Medium:</td>
<td></td>
</tr>
<tr>
<td>gefillt. Druckluft</td>
<td>air comprimé filtré</td>
<td>filtered compressed air</td>
<td>10...40 µm</td>
</tr>
</tbody>
</table>

**Hinweis:**
Wirk in der Endlage ein Moment entgegen der Drehrichtung, ist ein Antrieb mit dem doppelten theoretischen Drehmoment auszuwählen.

Die technischen Daten beziehen sich auf einen Nenndruck von 6 bar und Aflag Standard-Testbedingungen.

*Schwellzeit-Diagramm beachten.*

**Remarque:**
Si, en position de fin de course, un couple oppose une force au sens de rotation, il convient alors de sélectionner un entraînement avec couple de rotation théorique double.

Les caractéristiques techniques se basent sur une pression de consigne de 6 bar et les tests standard Aflag.

*Rotation du temps diagr. de noter.*

**Note:**
If a torque against the direction of rotation is applied in the final position, then a drive with the double theoretical torque should be selected.

The technical data refer to a nominal pressure of 6 bar under Aflag standard test conditions.

*Rotation time diagram note.*

**Im Lieferumfang inbegriffen:**
2 Zentrierrähen Ø19 x 5,8 mm
2 Montageschrauben M10x70 mm

Das CR 25 kann mit geölt oder ölfreier Luft betrieben werden. Wechsel von ungeölt auf geölt erlaubt aber nicht umgekehrt!
Reinraumklasse: 10000 (Federal Standard 209E)

**La livraison comprend:**
2 Douilles de centrage Ø19 x 5,8 mm
2 Vis de montage M10x70 mm

Pour CR 25 on peut utiliser aussi bien de l’air huilé que de l’air exempt d’huile.
Passage de non lubrifié autorisé, l’inverse non!
Classe de salle blanche: 10000 (Federal Standard 209E)

**Includes in the delivery:**
2 Centering bushings Ø19 x 5,8 mm
2 Mounting screws M10x70 mm

The CR 25 may be operated with oil-containing or oil-free air.
Change from non-lubricated permitted, but not vice versa!
**Clean room class:**
10000 (Federal Standard 209E)
3.2.0 Dimensions drawing for CR 32

Die gezeichneten Flansch Lochbilder stehen bei allen Modulen in der 0° Stellung. Der Flansch dreht sich somit 100° nach links und 100° nach rechts.

Les gabarits de trous de flasque dessinés sont en position 0° pour tous les modules. La flasque tourne ainsi 100° à gauche et 100° à droite.

The flange holes drawn are at 0° for all the modules. Thus the flange is rotating 100° left and 100° to right.

P = Luftanschlüsse
   Raccords d’air
   Air connectors

P1 = Uhrzeigersinn
    Sens horaire
    Clockwise direction

P2 = Gegenuhrzeigersinn
    Sens inverse horaire
    Counter clockwise direction
### 3.2.1 Technical data of the CR 32

<table>
<thead>
<tr>
<th>Typ</th>
<th>Type</th>
<th>CR 32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bestellnummer</td>
<td>Article No.</td>
<td>Order no.</td>
</tr>
<tr>
<td>Nenn-drehwinkel</td>
<td>Angle de rotation</td>
<td>Rotation angle</td>
</tr>
<tr>
<td>max. Drehwinkel (mechanisch)</td>
<td>Angle max. rotation (mechanique)</td>
<td>Max. rotation angle (mechanic)</td>
</tr>
<tr>
<td>Drehmoment</td>
<td>Couple de rotation</td>
<td>Torque</td>
</tr>
<tr>
<td>Minimale Drehzeit</td>
<td>Temps de rotation minimal</td>
<td>Min. rotating time</td>
</tr>
<tr>
<td>Positionen</td>
<td>Positions</td>
<td>Positions</td>
</tr>
<tr>
<td>Betriebsdruck</td>
<td>Pression d‘alimentation</td>
<td>Working pressure</td>
</tr>
<tr>
<td>Luftanschluss = P</td>
<td>Raccorde d‘air = P</td>
<td>Air connectors = P</td>
</tr>
<tr>
<td>Luftverbrauch (180°)</td>
<td>Consommation d‘air (180°)</td>
<td>Air consumption (180°)</td>
</tr>
<tr>
<td>Einbauablage</td>
<td>Position de montage</td>
<td>Mounting position</td>
</tr>
<tr>
<td>Modulgewicht</td>
<td>Poids du module</td>
<td>Weight of module</td>
</tr>
<tr>
<td>*Masseenträgheitsmoment.</td>
<td>*Moment d‘inertie de masse</td>
<td>*Mass moment of inertia</td>
</tr>
<tr>
<td>Winkelgenauigkeit</td>
<td>Précision angulaire</td>
<td>Angle precision</td>
</tr>
<tr>
<td>Stossdämpfer</td>
<td>Amortisseur</td>
<td>Shock absorber</td>
</tr>
<tr>
<td>Lämppegel bei 6 bar max. Nutzlast</td>
<td>Niveau de bruit à 6 bar</td>
<td>Decibel level, at 6 bar</td>
</tr>
<tr>
<td>Befestigungsra ster</td>
<td>Trame de fixation</td>
<td>Fixing grid</td>
</tr>
<tr>
<td>Befestigungsgewinde (durchgang)</td>
<td>Filet de montage (passage)</td>
<td>Mounting thread (passage)</td>
</tr>
<tr>
<td>Befestigungsgewinde (von unten)</td>
<td>Filet de montage (d’en pas)</td>
<td>Mounting thread (from below)</td>
</tr>
<tr>
<td>Temperatur:</td>
<td>Temperature:</td>
<td>Temperature:</td>
</tr>
<tr>
<td>– Lager</td>
<td>– de stockage</td>
<td>– Storage</td>
</tr>
<tr>
<td>– Betrieb</td>
<td>– d’utilisation</td>
<td>– Operation</td>
</tr>
<tr>
<td>– Luftfeuchtigkeit</td>
<td>– Humidité</td>
<td>– Humidity</td>
</tr>
<tr>
<td>nicht kondensierend</td>
<td>sans condensation</td>
<td>non condensing</td>
</tr>
<tr>
<td>Medium:</td>
<td>Fluids:</td>
<td>Medium:</td>
</tr>
<tr>
<td>gefüllt, Druckluft</td>
<td>air comprimé filtré</td>
<td>filtered compressed air</td>
</tr>
</tbody>
</table>

**Hinweis:**
Wirkt in der Endlage ein Moment entgegen der Drehrichtung, ist ein Antrieb mit dem doppelten theoretischen Drehmoment auszurüsten.

**Die technischen Daten beziehen sich auf einen Nenndruck von 6 bar und Afg Standard-Testbedingungen.**

---

**Remarque:**
Si, en position de fin de course, un couple oppose une force au sens de rotation, il convient alors de sélectionner un entraînement avec couple de rotation théorique double.

Les caractéristiques techniques se basent sur une pression de consigne de 6 bar et les tests standard Afg.

*Rotation du temps diag. de noter.*

---

**Im Lieferumfang inbegriffen:**
2 Zentrierhülsen Ø 19 x 5.8 mm
2 Montageschrauben M10x80 mm

**La livraison comprend:**
2 Douilles de centrage Ø 19 x 5.8 mm
2 Vis de montage M10x80 mm

**Das CR 32 kann mit geölt oder ölfreier Luft betrieben werden.**

Wechsel von ungeölt auf geölt erlaubt aber nicht umgekehrt!

Reinraumklasse:
10000 (Federal Standard 209E)

**Pour CR 32 on peut utiliser aussi bien de l‘air huilé que de l’air exempt d‘huile.**

**Passage de non lubrifié autorisé,** l‘inverse non!

**Classe de salle blanche:**
10000 (Federal Standard 209E)

**The CR 32 may be operated with oil-containing or oil-free air.**

Change from non-lubricated permitted, but not vice versa!

**Clean room class:**
10000 (Federal Standard 209E)

---

**Note:**
If a torque against the direction of rotation is applied in the final position, then a drive with the double theoretical torque should be selected.

The technical data refer to a nominal pressure of 6 bar under Afg standard test conditions.

*Rotation time diagramm note.*
3.2.2 Pneumatic connection CR – module

⚠️ CAUTION

Connection of compressed air and operation of pneumatic systems may cause unpredictable movements which may result in personal injury or damage to property.

Pay attention with the first one connect to the air pressure on it the fact that aerial throttle are closed. Ventilate the system slowly.

The CR module is equipped with 5 air connections depending on the direction of rotation.

Upper half module, 3 air connections (G 1/8), clockwise direction

Upper half module, 3 air connections (G 1/8), clockwise direction

Lower half of module, 3 air connection (G1/8), counterclockwise direction
3.2.3 Pneumatic connections CR-Module

1 Compressed air connection
2 Maintenance unit
3 4/2 (5/2) port directional control valve
4 One-way restrictor
5 CR rotary module

**NOTE**

| ! | Minimal compressed air quality according to ISO 8573-1; 2010 (7-4-4) |
3.2.4 Preparation for start-up
If they put before the start up shock absorber and adjusting stop screw in such a way that intended rotary fishes is properly absorbed.

![CAUTION]

The CR rotary module is fine mechanical unit and must be handled with the necessary care and cleanliness during transport and storage as well as when handling, setting-up and assembling.

Start-up
- Aerate the total system slowly.
- Pay attention to the permissible values (technical data) regarding:
  - load capacity
  - motion frequency
  - moment loads on the guide system

![CAUTION]

Limbs may be squeezed by moving components.

- Make sure that there are no persons or tools within the operating range of the module.
- Carry out a test run
  - at first at slow traverse speed,
  - afterwards under operating conditions.
3.2.5 End position adjust

Procedure:
1 Compressed air at (P1): shaft rotates counter clockwise
2 Release clamp of stop screw: unscrew clamping screw
3 Set position by turning stop screw
4 Compressed air at (P2): shaft rotates clockwise
5 Set Position by turning stop screw 2
6 Fix stop screws by clamp: tighten clamping screw 3

The sealing ring must be positioned before drawing the locknut so, that they in that adjusting stop screw adjoin.
3.2.6 Rotation angle adjust

Maximum angle of rotation = 200°

Reduction of angle rotation
Starting from a position between 0° and 180° the link positions can be reduced by maximum 100° by screwing in the corresponding stop screw.

⚠️ CAUTION ⚠️
If the angle of rotation is reduced by much more than 100° air may leak for constructional reasons. Turn the stop screw back to remove the leakage.
3.2.7 Shock absorber adjust

Maximum damping efficiency
The maximum damping efficiency is achieved when the shock absorbers are completely turned in (mechanical stop).

Reduced damping efficiency:
The clamping efficiency is reduced when the shock absorbers are turned back.
This is recommended if the loads to be moved are low and/or at slow rotational speeds.

Reducing the damping by turning the shock absorber back

Replacing the shock absorber:
The shock absorber can be removed if it is to be replaced. The module may be pressurized, air will not escape.

---

**CAUTION**

The module must not be operated without shock absorber installed as it may be damaged due to missing damping.
### 3.2.8 Query proximity switch

Clamping magnetic field sensors (1) are used for polling the CR stop positions.

<table>
<thead>
<tr>
<th>WARNING</th>
</tr>
</thead>
<tbody>
<tr>
<td>The CR and the initiators must not be used in an explosion-hazardous area.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>The magnetic field sensors are not included in the scope of supply of the CR-Module, (please see technical catalogue).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only the specified proximity switches are to be used.</td>
</tr>
</tbody>
</table>

Polling of the stop positions is monitored by an LED on the initiator. If the LED switch status does not change during polling the Sensor is faulty and must be replaced!

**Magnetic field sensors**

PNP proximity switch (magnetic) Order No. 50033432
3.2.9 Mounting the proximity switch

Attaching the proximity switch

1. Insert sensors 1 with sensor holder in the C-groove.
2. Fasten sensor with screw 3 in the C-groove.
3. Connect sensor to controller.
4. Check proper function of the sensors.
3.3.0 Cultivation regulations for addition modules CR 25/ CR 32

Only addition module may be grown which correspond the cultivation regulations the CR 25/32 rotary module and correspond to the prescribed pay loads. (see under technical data and in the preferred combinations).

For example one CS 20

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>For the cultivation from strange module in rotary module if the company Afag no liability takes over. Possible cultivation module are to be chosen so that these stand firm at a fully company rotary module.</td>
</tr>
</tbody>
</table>
3.3.1 Noise Emissionen

<table>
<thead>
<tr>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>!</td>
</tr>
<tr>
<td>The rotary module generate with full load 54 dB(A).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>!</td>
</tr>
<tr>
<td>The system designer is itself responsible themselves that the admitted noise approximate value are kept, or if protection writes to the operating person before a hearing to carry.</td>
</tr>
</tbody>
</table>
**4.0.0 Maintenance Instructions**

**4.1.0 Maintenance and servicing of the CR 25/32**

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>The module may only be disassembled when the system is aerated and deactivated. If pneumatic connections are disconnected when they are under pressure, this may result in serious personal injury due to fast movements of moving parts.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maintenance interval</th>
<th>Service measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>As required</td>
<td>▪ Clean the module with a dry, lint-free cloth. The module must not be washed down; do not use any aggressive cleaners.</td>
</tr>
<tr>
<td>1 Monthly</td>
<td>▪ Check the safety labels for damage, readability and cleanliness.</td>
</tr>
</tbody>
</table>

**Further maintenance**

Under the following conditions is the CR-rotary module maintenance free:

- Clean workshop atmosphere
- No splash water
- No dust and fumes caused by abrasion or processes
- Ambient conditions according the Montage Instructions
4.1.1 Servicing

The CR rotary module is lubricated for-life and can be operated with oiled and unoiled air.

**CAUTION**

Never operate the CR rotary module with unoiled air after it was operated with oiled air!

**Air characteristics:**

- Dry (free from condensation water)
- Filtered (40µm filter for oiled air)
- Filtered (5µm filter for unoiled air)

If the CR rotary module is operated with oiled air, the oil types listed below should be used:

- Festo special oil
- Avia Avilub RSL 10
- BP Energol HPL 10
- Esso Spinesso 10
- Shell Tellus Oil C 10
- Mobil DTE 21
- Blaser Blasol 154

Oil quantity: 5 – 10 oil drops per 1000 l air

Viscosity range:

9 to 11 mm²/s (= cST) at 40°C, ISO-class VG 10 according to ISO 3448

Apart from the usual cleaning work no further maintenance measures are required.

**NOTE**

Module inserts for ionized air environments (e.g. in case of high-voltage procedures such as corona processes)

Open guides and piston rods should be covered with a grease layer to avoid formation of rust.

Recommendation: Clean and grease once a month!

Afg standard:

- Staburax NBU8EP (flat guides)
- Blasolube 301 (piston rods)
4.1.2 Accessories for the CR 25/32 module

**INI c10x28.5-Em-PNP-NO-Mix1**

- **Näherungsschalter PNP mit Nutenstein (SCHLIESER)**
  - Bestellnummer
  - Betriebsspannung

- **Proxim. interrupteur PNP avec coulisseau (FERMETURE)**
  - Article No.
  - Tension d’emploi

- **Proximity switch PNP prep tenon block (CLOSING)**
  - Order No.
  - Normal voltage

---

**INI c10x9-Em-PNP-NO-Mix1**

- **Näherungsschalter PNP (SCHLIESER)**
  - Bestellnummer
  - Betriebsspannung

- **Proxim. interrupteur PNP (FERMETURE)**
  - Article No.
  - Tension d’emploi

- **Proximity switch PNP (CLOSING)**
  - Order No.
  - Normal voltage

---

**Stossdämpfer**

- **Bestellnummer**
  - Masse
  - max. Energieaufnahme

- **Amortisseur**
  - Article No.
  - Masse
  - max. La consommation d’énergie

- **Shock absorber**
  - Order No.
  - Masse
  - max. Energy consumption:

**Hub**

- SW 24
- SW 14
- SW 20
- SW 15
- SW 19

---

**Stossdämpfer**

- **Bestellnummer**
  - Masse
  - max. Energieaufnahme

- **Amortisseur**
  - Article No.
  - Masse
  - max. La consommation d’énergie

- **Shock absorber**
  - Order No.
  - Masse
  - max. Energy consumption:

**Hub**

- SW 26
- SW 12
- SW 19
- SW 20
- SW 15

---

CR 25, CR 32
## 4.1.3 Trouble-shooting

Defective components are exclusively to be replaced by Afag original spare.

<table>
<thead>
<tr>
<th>Fault</th>
<th>Possible cause</th>
<th>Fault clearance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module does not rotate</strong></td>
<td>Compressed air not available</td>
<td>Check connections</td>
</tr>
<tr>
<td></td>
<td>Module wrongly connect</td>
<td>Check connections</td>
</tr>
<tr>
<td><strong>Stop position signal not present</strong></td>
<td>Stop screw misadjusted</td>
<td>Readjust the stop screw</td>
</tr>
<tr>
<td></td>
<td>Initiator faulty</td>
<td>Replace initiator</td>
</tr>
<tr>
<td></td>
<td>Sensor cable broken</td>
<td>Replace initiator cable</td>
</tr>
<tr>
<td><strong>Module hits against stop positions</strong></td>
<td>Shock absorber misadjusted</td>
<td>Readjust shock absorber</td>
</tr>
<tr>
<td></td>
<td>Shock absorber faulty</td>
<td>Replace shock absorber</td>
</tr>
<tr>
<td></td>
<td>Shock absorber not installed</td>
<td>Install shock absorber</td>
</tr>
<tr>
<td></td>
<td>Exhaust air throttle faulty</td>
<td>Replace exhaust air throttle</td>
</tr>
<tr>
<td></td>
<td>High rotary speed</td>
<td>Adjust exhaust air throttle</td>
</tr>
</tbody>
</table>
4.1.4 Disassembly and repair

When the module is damaged it can be returned to Afag Automation AG for repair.

⚠️ CAUTION

The module may only be disassembled when the system is aerated and deactivated. If pneumatic connections are disconnected when they are under pressure, this may result in serious personal injury due to fast movements of moving parts.

When can the modules be repaired by the customer?

Wearing parts can be exchanged by the customer itself when the warranty has expired.

NOTE

All the other faulty parts must exclusively be replaced by company Afag Automation AG!

When the customer detects that the respective module is still under warranty:

- The returns the module to company Afag Automation AG for repair.
- If the warranty has already expired, the customer must decide whether he repairs the module by himself and orders the wearing parts kit or whether he returns the module to company Afag Automation AG for repair.

NOTE

Afag offers a reliable repair service. Please note that Afag does not warranty for parts which were not repaired by Afag Automation AG.
5.0.0 Disposal

NOTE

CR which are of no further use should not be disposed of as a complete unit but dismantled into individual parts according to the type of material and recycled should be correctly disposed of.