



**LEHENGOTAK, S. A.**



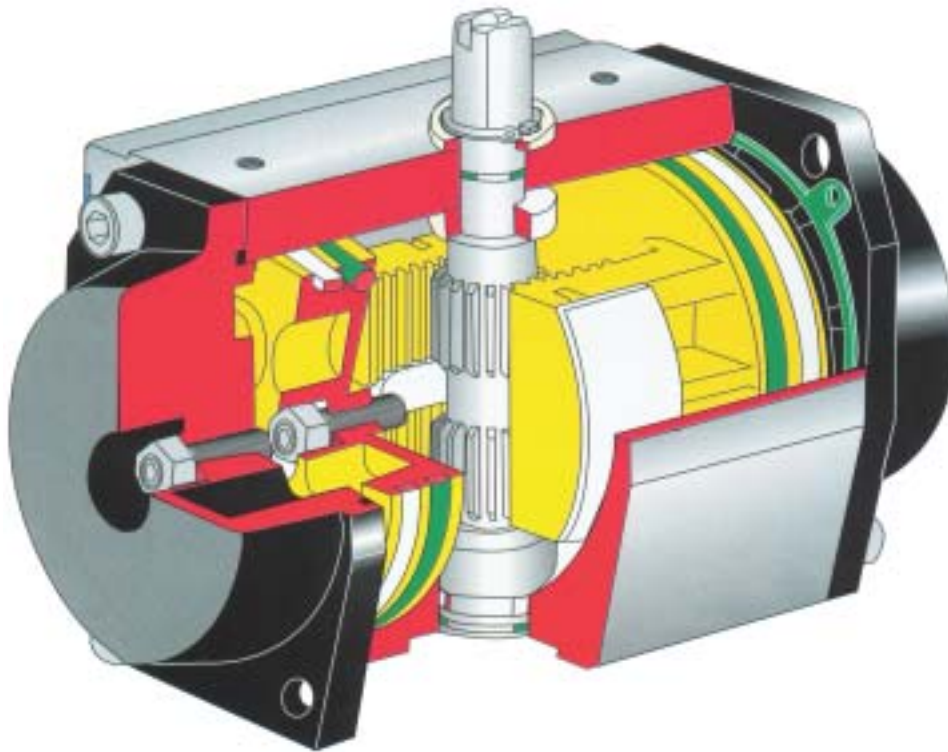
**ACTUADORES NEUMÁTICOS**

**PNEUMATIC ACTUATORS**

**PNEUMATISCHE SCHWENKANTRIEBE**

**ACTIONNEURS PNEUMATIQUES**





**PROTECCIONES DISPONIBLES - AVAILABLE PROTECTIONS**  
**VERFUGBARE SCHUTZBESCHICHTUNGEN - PROTECTIONS DISPONIBLES**

**SERIE "AE"**

|         |                 |           |                |
|---------|-----------------|-----------|----------------|
| Cuerpo: | Anodizado duro  | Body:     | Hard anodized  |
| Capas:  | Epoxy Poliéster | End caps: | Epoxy Polyeste |
| Eje:    | Níquel químico  | Shaft:    | ENP            |

|          |                    |             |                 |
|----------|--------------------|-------------|-----------------|
| Gehäuse: | Hardanodisiert     | Corps:      | Anodise dur     |
| Deckel:  | Epoxy Polyester    | Couvercles: | Epoxy Polyester |
| Welle:   | Chemisch Vernickel | Axe:        | Nickel Chimie   |

**SERIE "NN"**

|         |                |           |     |
|---------|----------------|-----------|-----|
| Cuerpo: | Níquel químico | Body:     | ENP |
| Tapas:  | Níquel químico | End caps: | ENP |
| Eje:    | Níquel químico | Shaft:    | ENP |

|          |                    |             |               |
|----------|--------------------|-------------|---------------|
| Gehäuse: | Chemisch vernickel | Corps:      | Nickel Chimie |
| Deckel:  | Chemisch vernickel | Couvercles: | Nickel Chimie |
| Welle:   | Chemisch vernickel | Axe:        | Nickel Chimie |

| Modelo - Model<br>Model - Modèle | Presión Máx.<br>Max. Pressure<br>Maximaldruck<br>Pression Max | Rotación<br>Rotation<br>Rotationen<br>Rotation | Volumen- Volumen<br>Volumen - Volume | Abierto - Open<br>Offen - Ouvert |          | Cerrado - Closed<br>Geschlossen - Ferme |          | Grasa Estándar<br>Standard Grease<br>Standard Fett<br>Graisse Standard |
|----------------------------------|---------------------------------------------------------------|------------------------------------------------|--------------------------------------|----------------------------------|----------|-----------------------------------------|----------|------------------------------------------------------------------------|
|                                  |                                                               |                                                |                                      | DA                               | SR       | DA                                      | SR       |                                                                        |
| CH032                            | 8 bar                                                         | 90° +/- 3                                      | 0,07 Litres                          | 0,5 sec.                         | -        | 0,5 sec.                                | -        | Bisulfuro de Molibdeno -<br>Molydenum<br>Bisulp.                       |
| CH042                            |                                                               | 90° +/- 5                                      | 0,18 Litres                          |                                  | 0,5 sec. | 0,5 sec.                                | 0,5 sec. |                                                                        |
| CH050                            |                                                               |                                                | 0,23 Litres                          | 0,6 sec.                         | 0,6 sec. | 0,6 sec.                                | 0,6 sec. |                                                                        |
| CH063                            |                                                               |                                                | 0,45 Litres                          |                                  | 0,7 sec. | 0,7 sec.                                | 0,9 sec. |                                                                        |
| CH075                            |                                                               |                                                | 0,61 Litres                          |                                  |          | 0,9 sec.                                | 1,0 sec. |                                                                        |
| CH085                            |                                                               |                                                | 0,98 Litres                          | 0,8 sec.                         | 1,1 sec. | 1,3 sec.                                | 1,3 sec. |                                                                        |
| CH100                            |                                                               |                                                | 1,80 Litres                          |                                  | 1,2 sec. | 1,6 sec.                                | 1,6 sec. |                                                                        |
| CH115                            |                                                               |                                                | 2,80 Litres                          |                                  | 1,3 sec. | 2,1sec.                                 | 2,1sec.  |                                                                        |
| CH125                            |                                                               |                                                | 3,70 Litres                          | 1,1 sec.                         | 1,4 sec. | 2,0 sec.                                | 2,0 sec. |                                                                        |
| CH145                            |                                                               |                                                | 4,90 Litres                          |                                  | 2,1sec.  | 2,6sec.                                 | 2,6sec.  |                                                                        |
| CH160                            |                                                               |                                                | 8,00 Litres                          | 1,3 sec.                         | 4,6 sec. | 4,6 sec.                                | 6,1sec.  |                                                                        |
| CH180                            |                                                               |                                                | 11,10 Litres                         | 2,3 sec.                         | 4,5 sec. | 6,0sec.                                 | 6,0sec.  |                                                                        |
| CH200                            |                                                               |                                                | 14,20 Litres                         | 3,6 sec.                         | 4,5 sec. | 6,0sec.                                 | 6,0sec.  |                                                                        |
| CH240                            |                                                               |                                                | 19,20 Litres                         | 4,1 sec.                         | 4,5 sec. | 6,0sec.                                 | 6,0sec.  |                                                                        |
| CH270                            |                                                               |                                                | 22,20 Litres                         | 4,5 sec.                         | 6,0 sec. | 4,5 sec.                                | 6,0sec.  |                                                                        |

## CARACTERÍSTICAS GENERALES

- Alimentación: Aire comprimido filtrado, seco o lubricado, presión mínima 1 bar, presión máxima 10 bar.
- Lubricación realizada en fábrica y garantizada para un mínimo de 1.000.000 de maniobras.
- Acabado de la superficie interior del cuerpo (Ra 0,4-0,6 µm) para reducir al mínimo la fricción y maximizar la vida del actuador.
- Patines deslizantes en material de bajo coeficiente de fricción (LAT LUB) para evitar el contacto metal-metal, fácilmente reemplazables para su mantenimiento.
- Doble taladrado inferior para el anclaje y centrado de la válvula según norma ISO 5211 y DIN 3337.
- Conexión inferior eje cuadrado hembra según norma ISO 5211/DIN 333 para montaje a 45° o 90° indistintamente.
- Montaje directo electroválvula según norma NAMUR.
- Montaje accesorios según norma NAMUR VDI/VDE 3845.
- Temperatura de trabajo: de -20°C a +80°C.
- Protección externa cuerpo: Anodizado Duro. 500 horas Cámara Niebla salina según ASTM B117-73.
- Protección externa tapas: Recubrimiento Epoxy-Poliéster.
- Limitador de carrera a la apertura y al cierre.
- Control de funcionamiento y estanquidad 100% a través de sistema electrónico con certificación individual.

## MATERIALES UTILIZADOS

**Cuerpo:** Aleación de aluminio extruido según ASTM 6063. Anodizado duro según UNI 4522. Opcional recubrimiento níquel químico.

**Tapas:** Aleación de aluminio inyectado ASTM B179 protegido con Epoxy-Poliéster. Opcional recubrimiento níquel químico.

**Pistones:** Aleación de aluminio inyectado ASTM B179.

**Piñón:** Acero carbono + níquel químico.

**Patines:** Resina acetálica (LAT LUB 731320T).

**Tornillos:** Acero inox. AISI 304.

**Muelles:** Cartuchos precomprimidos acero recubierto resina epoxídica.

**Juntas estanquidad:** NBR (VITON bajo pedido).

**Grasa estándar:** MoS<sub>2</sub>.

## ALLGEMEINE EIGENSCHAFTEN

- Speisung: trockene oder geschmierte filtrierte Druckluft Minimaldruck 1 Bar, Maximaldruck 10 Bar.
- In der Werkstatt durchgeführte Schmierung, die garantiert für mindestens 1000000 Arbeitsvorgänge ausreicht.
- Feinbearbeitung der internen Oberfläche (Ra 0.4-0.6 mm), um die Reibung zu minimieren und die Lebensdauer des Aktuators selbst zu maximieren.
- Führungen aus Material mit niedrigem Reibungskoeffizient (LAT LUB), um den Kontakt von Metall auf Metall zu vermeiden; leicht auswechselbar bei Wartung.
- Doppelte, untere Bohrung zur Fixierung des Ventils und Zentrierung entsprechend den Normen ISO 5211/DIN 3337.
- Unterer, weiblicher Schlüssel des Ritzels, den Normen ISO 5211/DIN 3337 entsprechend, zur Montage auf Ventile mit einer Welle mit Vierkant Schlüssel auf gleicher Linie.
- Bohrung der Speiseanschlüsse nach NAMUR-Normen.
- Obere Bohrung, zur Fixierung von Zubehör, und oberes Ritzelende nach NAMUR-Normen.
- Standardausführung für Temperaturen von -20°C bis +80°C.
- Äußere Schutzbeschichtung: Korrosionswiderstand von 500 Stunden in Salznebel, nach ASTM B117-73.
- Automatisch gepunzter Etikettenaufkleber mit fortlaufender Seriennummer.
- Funktions- und Dichtheitsprüfung auf 100% mit elektronischer Apparatur und Einzelbeurkundung des Produkts.

## VERWENDETE MATERIALIEN

**Körper:** Aluminiumlegierung, fließgepreßt nach ASTM 6063, eloxiert nach UNI 4522, oder vernickelt (chem. Nickel), oder durch Epoxidharzlackierung geschützt.

**Zylinderköpfe:** Druckguß aus Aluminiumlegierung nach ASTM B179, mit Epoxypolyesterstaub lackiert oder chem. Nickel.

**Kolben:** druckgegossen aus Aluminiumlegierung nach ASTM B179.

**Ritzel:** aus vernickeltem Stahl.

**Führungen:** aus Azetalharz (LAT LUB 731320T).

**Schrauben:** aus INOX-Stahl nach AISI 304.

**Federn:** Vorspannung durch Einsatz gegeben, mit Epoxidpulver lackiert.

**Dichtungen:** aus Nitrilgummi NBR (auf Wunsch VITON oder EPDM).

**Standard fett:** MoS<sub>2</sub>.

## GENERAL FEATURES

- Supply: dry or lubricated filtered compressed air; pressure: min. 1 Bar, max. 10 Bar.
- The lubrication carried out by the manufacturer is guaranteed for min. 1000000 manoeuvres.
- Inside surface finish (Ra 0.4-0.6 mm) to minimize friction and to maximize the life of the actuator.
- Slideways made of material with a low friction coefficient (LAT LUB) to avoid metal to metal contact, easily replaceable for maintenance.
- Double lower drilling, for fastening the valve, and centering, according to ISO 5211/DIN 3337 standards.
- Lower female pinion key, according to ISO 5211/DIN 3337 standards, for assembly on valves with square key on line shaft.
- Drilling of the supplying connections according to NAMUR standards.
- Upper drilling for fastening the accessories, and upper pinion end according to NAMUR standards.
- Standard execution for temperatures from -20°C to +80°C.
- External protection: resistance to corrosion of 500 hrs in salty fog according to ASTM B117-73.
- Adhesive labels on which the progressive serial number is automatically punched.
- Running test and 100% seal test carried out with electronic equipment and certification of each individual product.

## MATERIALS USED

**Body:** Aluminium alloy, extruded according to ASTM 6063, anodized according to UNI 4522, nickel-plated (chemical nickel) or protected with epoxy-paint.

**Heads:** die-cast in aluminium alloy ASTM B179, painted with epoxy-polyester powder or chemical Nickel.

**Pistons:** die-cast in aluminium alloy ASTM B179.

**Pinion:** nickel-plated steel.

**Slideways:** acetal resin (LAT LUB 731320T).

**Screws:** stainless steel AISI 304.

**Springs:** precompressed cartridge, painted with epoxy powder.

**Seals:** nitrile rubber NBR (VITON or EPDM on request).

**Standard grease:** MoS<sub>2</sub>.

## CARACTÉRISTIQUES GÉNÉRALES

- Alimentation: air comprimé filtré, sec ou lubrifié, pression min. 1 Bar, max. 10 Bar.
- Lubrification: faite à l'usine et garantie pour min. 1000000 de manoeuvres.
- Finissage de la surface intérieure (Ra 0.4-0.6 mm) pour réduire au minimum les frottements et prolonger au maximum la vie de l'actionneur.
- Glissières en matériel à bas coefficient de frottement (LAT LUB), pour éviter le contact métal contre métal, peuvent être facilement remplacées pour l'entretien.
- Double perçage inférieur pour le fixage de la valve, et le centrage, suivant les normes ISO 5211/DIN 3337.
- Clé femelle inférieure du pignon, suivant les normes ISO 5211/DIN 3337, pour montage sur des valves avec arbre à clé carrée en ligne.
- Perçage des raccords d'alimentation suivant les normes NAMUR.
- Perçage supérieur, pour le fixage des accessoires, et bout supérieure du pignon suivant les normes NAMUR.
- Exécution standard pour températures de -20°C bis +80°C.
- Protection extérieure: résistance à la corrosion: 500 heures dans un brouillard salin suivant ASTM B117-73.
- Etiquette adhésive avec numéro de série progressif poëçonné automatiquement.
- Contrôle de fonctionnement et de 100% des étanchéités effectué avec un appareillage électronique et certification de chaque produit.

## MATÉRIELS UTILISÉS

**Corps:** en alliage d'aluminium extrudé ASTM 6063, anodisé UNI 4522, ou nickelé (nickel chimique), ou protégé par vernissage époxydique.

**Têtes:** moulées sous pression en alliage d'aluminium ASTM B179, vernissées avec poudre époxy-poliester ou Nickel chimique.

**Pistons:** moulés sous pression en alliage d'aluminium ASTM B179.

**Pignon:** en acier nickelé.

**Glissières:** en résine acétalique (LAT LUB 731320T).

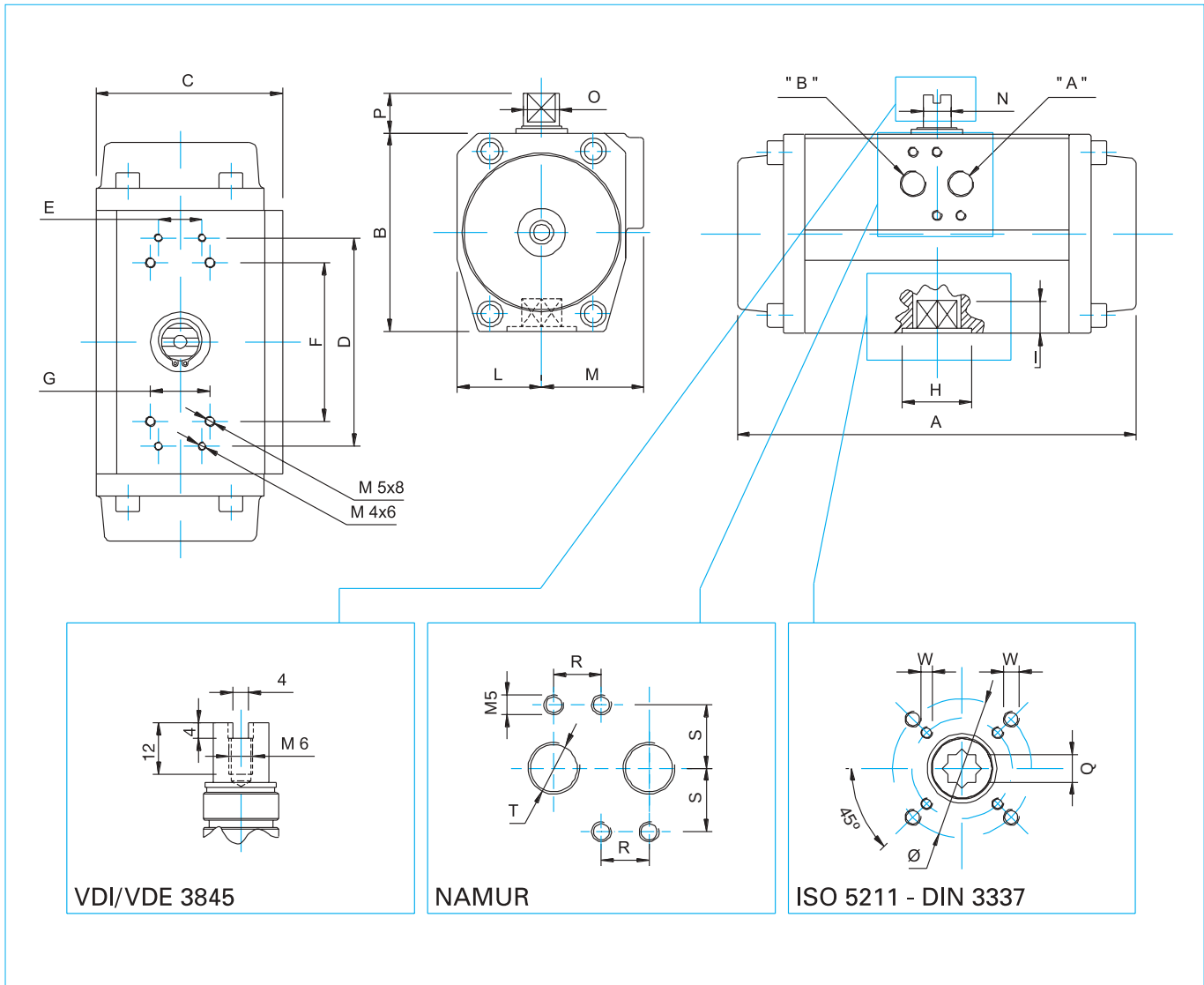
**Vis:** en acier inoxydable AISI 304.

**Ressorts:** précomprimés en cartouche, vernissés avec poudre époxydique.

**Joints d'étanchéité:** caoutchouc nitrile NBR (VITON ou EPDM sur demande).

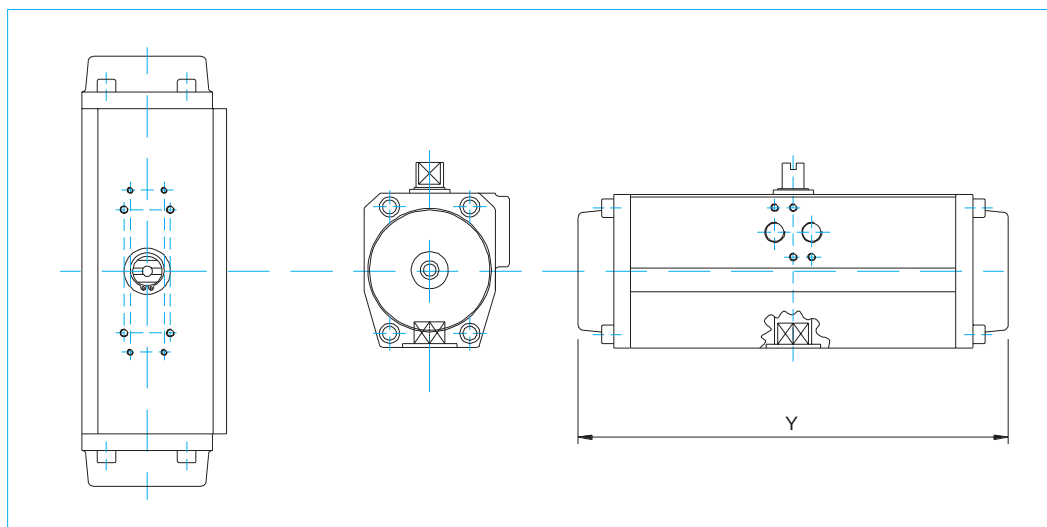
**Graisse standard:** MoS<sub>2</sub>.

**DIMENSIONES GENERALES - GENERAL DIMENSIONS**  
**ABMESSUNGEN - DIMENSIONS GÉNÉRALES**



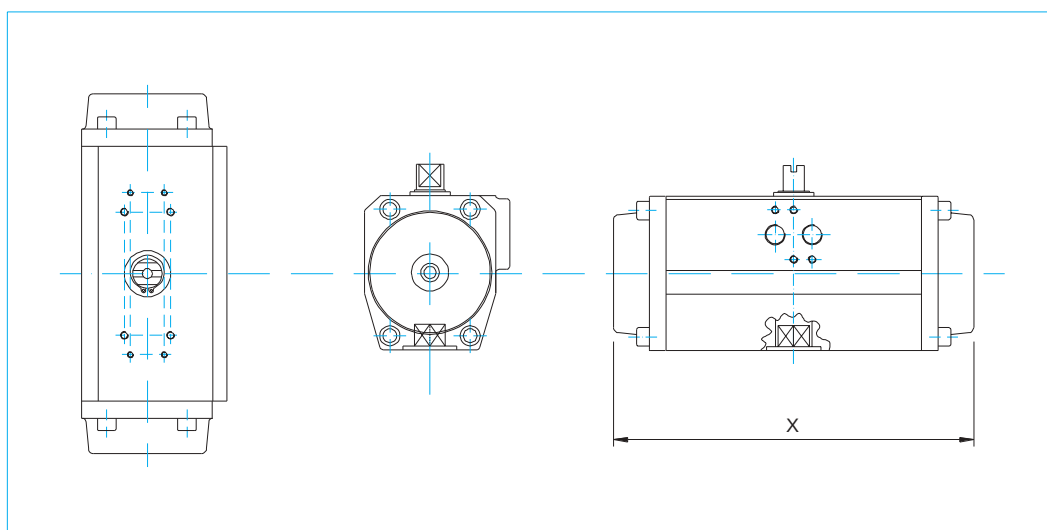
|           | Modelo Actuador - Model Actuator - Model Schwenkantriebe - Modèle Actionneur |         |         |         |         |         |         |         |         |         |         |         |       |       |       |
|-----------|------------------------------------------------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|-------|-------|
|           | CH032                                                                        | CH042   | CH050   | CH063   | CH075   | CH085   | CH100   | CH115   | CH125   | CH145   | CH160   | CH180   | CH200 | CH240 | CH270 |
| A         | 117                                                                          | 160     | 138     | 155,5   | 210     | 228     | 280,5   | 310     | 362     | 390     | 462     | 474     | 575   | 590   | 685   |
| B         | 45                                                                           | 57      | 67      | 83      | 100     | 110     | 125     | 142     | 155     | 175     | 196     | 220     | 240   | 298   | 332   |
| C         | 48                                                                           | 60,5    | 75      | 86      | 94      | 104     | 120     | 134     | 141     | 163     | 176     | 196     | 220   | 300   | 352   |
| D         | -                                                                            | -       | -       | -       | 105     | 105     | 105     | 139     | 139     | 139     | 139     | 139     | 139   | -     | -     |
| E         | -                                                                            | -       | -       | -       | 22      | 22      | 22      | 22      | 22      | 22      | 22      | 22      | 22    | -     | -     |
| F         | 50                                                                           | 80      | 80      | 80      | 80      | 80      | 80      | 130     | 130     | 130     | 130     | 130     | 130   | 130   | 130   |
| G         | 25                                                                           | 30      | 30      | 30      | 30      | 30      | 30      | 30      | 30      | 30      | 30      | 30      | 30    | 30    | 30    |
| H         | -                                                                            | 25      | 25      | 30      | 35      | 40      | 55      | 55      | 55      | 70      | 75      | 75      | 100   | 100   | 130   |
| I         | 10                                                                           | 13      | 13      | 16      | 20      | 20      | 20      | 25      | 25      | 30      | 30      | 30      | 37    | 37    | 50    |
| L         | 22,5                                                                         | 27      | 33,5    | 38      | 42,5    | 49      | 55      | 63,5    | 69,5    | 80      | 88      | 98      | 110   | 150   | 166   |
| M         | 25,5                                                                         | 33,5    | 41,5    | 48      | 51,5    | 55      | 65      | 70,5    | 71,5    | 83      | 88      | 98      | 110   | 150   | 166   |
| T/DIN 259 | 1/8"                                                                         | 1/8"    | 1/8"    | 1/4"    | 1/4"    | 1/4"    | 1/4"    | 1/4"    | 1/4"    | 1/4"    | 1/4"    | 1/4"    | 1/4"  | 1/2"  | 1/2"  |
| N         | 8                                                                            | 8       | 8       | 8       | 14      | 14      | 14      | 27      | 27      | 27      | 27      | 27      | 32    | 32    | 35    |
| O         | 12                                                                           | 12      | 12      | 12      | 18      | 18      | 18      | 36      | 36      | 36      | 36      | 36      | 42    | 60    | 80    |
| P         | 20                                                                           | 20      | 20      | 20      | 20      | 20      | 20      | 30      | 30      | 30      | 50      | 50      | 50    | 50    | 50    |
| Q         | 9                                                                            | 11      | 11      | 11      | 17      | 17      | 17      | 22      | 22      | 27      | 27      | 27      | 36    | 36    | 46    |
| R         | 12                                                                           | 12      | 12      | 12      | 12      | 12      | 12      | 12      | 12      | 12      | 12      | 12      | 12    | 20    | 20    |
| S         | 16                                                                           | 16      | 16      | 16      | 16      | 16      | 16      | 16      | 16      | 16      | 16      | 16      | 16    | 25    | 25    |
| DIAM. Ø   | 36                                                                           | 36/50   | 36/50   | 36/50   | 50/70   | 50/70   | 70/102  | 70/102  | 70/102  | 102/125 | 102/125 | 102/125 | 140   | 140   | 165   |
| W         | M5                                                                           | M5/M6   | M5/M6   | M5/M6   | M6/M8   | M6/M8   | M8/M10  | M8/M10  | M8/M10  | M10/M12 | M10/M12 | M10/M12 | M16   | M16   | M20   |
| ISO 5211  | F03                                                                          | F03/F05 | F03/F05 | F03/F05 | F05/F07 | F05/F07 | F07/F10 | F07/F10 | F07/F10 | F10/F12 | F10/F12 | F10/F12 | F14   | F14   | F16   |

**ACTUADORES NEUMÁTICOS 120° - PNEUMATIC ACTUATOR 120°**  
**PNEUMATISCHE ANTRIEBE 120° - ACTIONNEURS PNEUMATIQUES 120°**



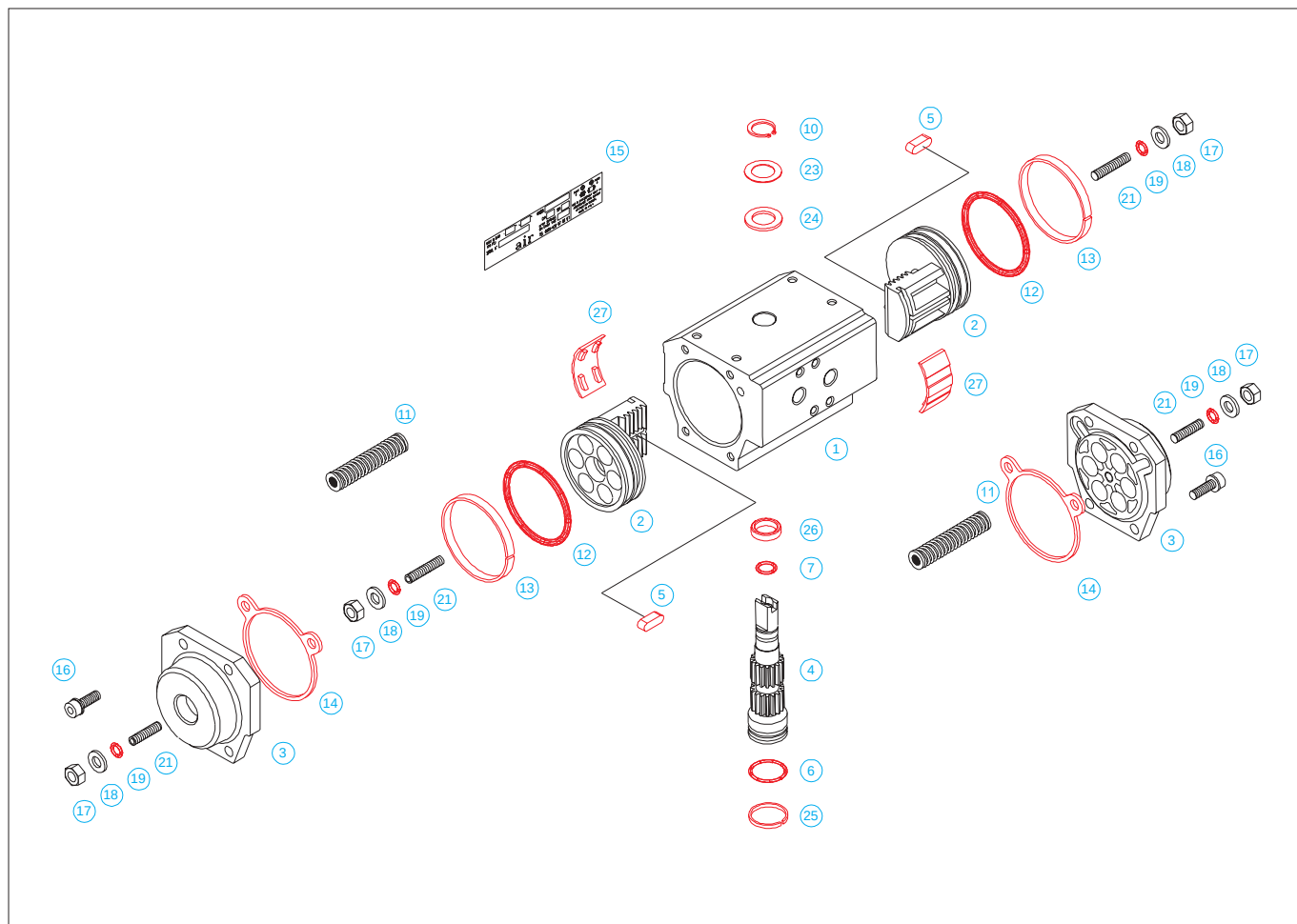
| DA                                                                |      | Modelo <span>Model</span> <span>Model</span> <span>Modèle</span> |      |       |      |       |      |       |      |       |      |       |       |       |       |       |       |       |       |
|-------------------------------------------------------------------|------|------------------------------------------------------------------|------|-------|------|-------|------|-------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                                                   |      | CH032                                                            |      | CH042 |      | CH050 |      | CH063 |      | CH075 |      | CH085 |       | CH100 |       | CH115 |       | CH125 |       |
| Y                                                                 |      | mm                                                               | inch | mm    | inch | mm    | inch | mm    | inch | mm    | inch | mm    | inch  | mm    | inch  | mm    | inch  | mm    | inch  |
|                                                                   |      | 150                                                              | 5.91 | 194   | 7.64 | 172   | 6.77 | 201   | 7.91 | 249   | 9.80 | 282   | 11.10 | 332   | 13.07 | 373   | 14.68 | 432   | 17.01 |
| Volumen - <span>Volumen</span><br><span>Volumen</span> - Volume   | Lt.  | 0.10                                                             |      | 0.21  |      | 0.27  |      | 0.58  |      | 0.70  |      | 1.15  |       | 2.10  |       | 3.40  |       | 4.60  |       |
| Abierto - <span>Opening</span><br><span>Open</span> - Ouvert      | Sec. | 0.60                                                             |      | 0.60  |      | 0.70  |      | 0.75  |      | 0.75  |      | 0.75  |       | 1.00  |       | 1.10  |       | 1.40  |       |
| Cerrado - <span>Closed</span><br><span>Geschlossen</span> - Fermé | Sec. | 0.60                                                             |      | 0.60  |      | 0.70  |      | 0.85  |      | 0.85  |      | 1.00  |       | 1.10  |       | 1.30  |       | 1.60  |       |
| Peso - <span>Weight</span><br><span>Gewicht</span> - Poids        | Kg.  | 0.55                                                             |      | 1.00  |      | 1.30  |      | 1.90  |      | 3.30  |      | 4.80  |       | 6.70  |       | 10.6  |       | 13.4  |       |

**ACTUADORES NEUMÁTICOS 180° - PNEUMATIC ACTUATOR 180°**  
**PNEUMATISCHE ANTRIEBE 180° - ACTIONNEURS PNEUMATIQUES 180°**



| DA                                                                |      | Modelo <span>Model</span> <span>Model</span> <span>Modèle</span> |      |       |      |       |      |       |      |       |       |       |       |       |       |       |       |       |       |
|-------------------------------------------------------------------|------|------------------------------------------------------------------|------|-------|------|-------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|                                                                   |      | CH032                                                            |      | CH042 |      | CH050 |      | CH063 |      | CH075 |       | CH085 |       | CH100 |       | CH115 |       | CH125 |       |
| X                                                                 |      | mm                                                               | inch | mm    | inch | mm    | inch | mm    | inch | mm    | inch  | mm    | inch  | mm    | inch  | mm    | inch  | mm    | inch  |
|                                                                   |      | 195                                                              | 7.68 | 230   | 9.05 | 211   | 8.31 | 220   | 8.66 | 298   | 11.73 | 338   | 13.31 | 401   | 15.79 | 462   | 18.19 | 570   | 22.44 |
| Volumen - <span>Volumen</span><br><span>Volumen</span> - Volume   | Lt.  | 0.15                                                             |      | 0.30  |      | 0.39  |      | 0.73  |      | 1.00  |       | 1.50  |       | 2.80  |       | 4.50  |       | 5.90  |       |
| Abierto - <span>Opening</span><br><span>Open</span> - Ouvert      | Sec. | 0.70                                                             |      | 0.80  |      | 0.85  |      | 0.85  |      | 0.85  |       | 1.00  |       | 1.20  |       | 1.40  |       | 1.80  |       |
| Cerrado - <span>Closed</span><br><span>Geschlossen</span> - Fermé | Sec. | 0.70                                                             |      | 0.80  |      | 0.85  |      | 1.00  |      | 1.00  |       | 1.40  |       | 1.50  |       | 1.70  |       | 2.10  |       |
| Peso - <span>Weight</span><br><span>Gewicht</span> - Poids        | Kg.  | 0.75                                                             |      | 1.20  |      | 1.70  |      | 2.50  |      | 4.70  |       | 7.00  |       | 10.0  |       | 15.5  |       | 19.2  |       |



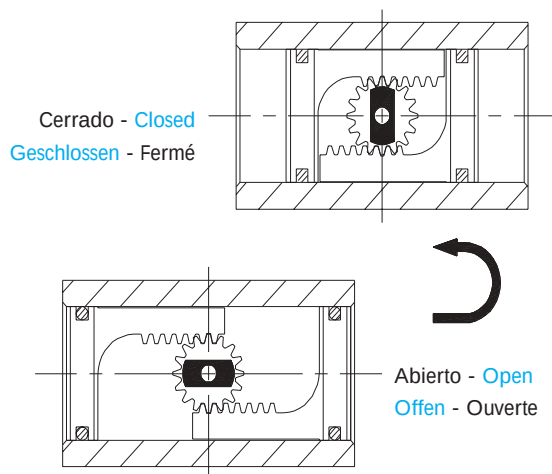


| Piezas Parts<br>Ersatzteile<br>Pieces | Set recambio<br>Spare parts set<br>Ersatzteile gruppe<br>Set Pieces de<br>réchange | Cantidad<br>Quantity | Descripción - Description - Beschreibung - Description |                      |                               |                            |
|---------------------------------------|------------------------------------------------------------------------------------|----------------------|--------------------------------------------------------|----------------------|-------------------------------|----------------------------|
| 1                                     |                                                                                    | 1                    | CUERPO                                                 | BODY                 | KÖRPER                        | CORPS                      |
| 2                                     |                                                                                    | 2                    | PISTÓN                                                 | PISTON               | KOLBEN PISTON                 | PISTON                     |
| 3                                     |                                                                                    | 2                    | TAPA                                                   | END CAP              | DECKEL                        | COUVERCLE                  |
| 4                                     |                                                                                    | 1                    | PIÑÓN                                                  | PINION               | RITZEL                        | PIGNON                     |
|                                       | · 5                                                                                | 2                    | GUÍA PISTÓN                                            | PISTON PILOT KEY     | FÜHRUNGSKEIL RITZEL           | CLAVETTE GUIDAGE PISTON    |
|                                       | · 6                                                                                | 1                    | JUNTA INFERIOR PIÑÓN                                   | O-RING LOWER PINION  | O-RING UNTERES RITZEL         | JOINT SUPERIEUR PIGNON     |
|                                       | · 7                                                                                | 1                    | JUNTA SUPERIOR PIÑÓN                                   | O-RING UPPER PINION  | O-RING OBERES RITZEL          | JOINT INFÉRIEUR PIGNON     |
|                                       | · 10                                                                               | 1                    | CIRCLIP                                                | SEEGER RING          | SEEGERRING                    | BAGUE SEEGER               |
| 11                                    |                                                                                    |                      | MUELLES                                                | SPRING GROUP         | FEDERGRUPE                    | GROUPE RESSORT             |
|                                       | · 12                                                                               | 2                    | JUNTA TAPA PISTÓN                                      | O-RING FOR PISTON    | O-RING DES RITZEL             | JOINT PISTON               |
|                                       | · 13                                                                               | 2                    | ANILLO ANTIFRICCIÓN                                    | ANTIFRICTION RING    | ANTIFRIKTIONSRING RITZEL      | BAGUE ANTIFRICTION PISTON  |
|                                       | · 14                                                                               | 2                    | JUNTA TAPA                                             | COVER GASKET         | DECKELDICHUNG                 | JOINT COUVERCLE            |
| 15                                    |                                                                                    | 1                    | PLACA IDENTIFICACIÓN                                   | NAME PLATE           | NAMENSSCHILD                  | PLAQUETTE D'IDENTIFICATION |
| 16                                    |                                                                                    | 8                    | TORNILLO TAPA                                          | END CAP BOLT         | DECKELFIXIERSCHRAUBE          | VIS FIXAGE COUVERCLE       |
| 17                                    |                                                                                    | 4                    | TUERCA                                                 | NUT                  | MUTTER                        | ECROU                      |
| 18                                    |                                                                                    | 2                    | ARANDELA                                               | WASHER               | UNTERLEGSCHIEBE               | RONDELLE                   |
|                                       | · 19                                                                               | 1                    | JUNTA                                                  | O-RING               | O-RING                        | O-RING                     |
| 21                                    |                                                                                    | 1                    | ESPÁRRAGO REGULACIÓN EXTERIOR                          | STROKE ADJUSTMENT    | DECKELSTIFT                   | GRAIN DU COUVERCLE         |
|                                       | · 23                                                                               | 1                    | ARANDELA                                               | PINION THRUST WASHER | DRUCKSCHEIBE RITZEL           | RONDELLE                   |
|                                       | · 24                                                                               | 1                    | ARANDELA NYLON                                         | ANTIFRICTION WASHER  | ANTIFRIKTIONSUNTERLEGSCHIEBE  | RONDELLE ANTIFRICTION      |
|                                       | · 25                                                                               | 1                    | GUÍA INFERIOR PIÑÓN                                    | PINIO LOWER BEARING  | RITZELFÜHRUNGSRING            | BAGUE INFÉRIEUR GUIDAGE    |
|                                       | · 26                                                                               | 1                    | GUÍA SUPERIOR PIÑÓN                                    | PINIO UPPER BEARING  | OBERER RITZELFÜHRUNGSRING     | BAGUE SUPERIEUR GUIDAGE    |
|                                       | · 27                                                                               | 2                    | PATÍN ANTIFRICCIÓN                                     | PISTON BEARING       | ANTIFRIKTIOSGLEITBACKE KOLBEN | GLISSEUR ANTIFRICTION      |
| 28                                    |                                                                                    | 2                    | ESPÁRRAGO REGULACIÓN INTERIOR                          | PISTON DOWEL         | KOLBENSTIFT                   | GRAIN DU PISTON            |

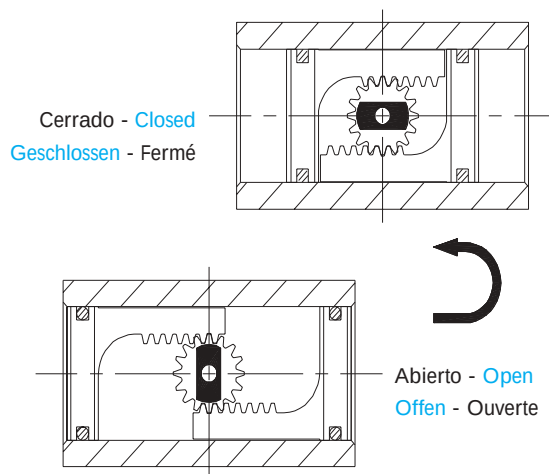
## VARIANTES DE MONTAJE - ASSEMBLY VARIATIONS

### MONTAGEVARIANTEN - VARIANTES DE MONTAGE

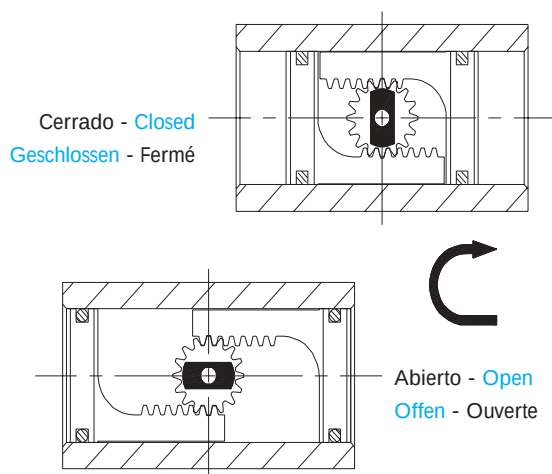
**A** Muelles cierran la válvula - **Springs Closed the Valve**  
 Die federn (schliessen) das ventil - Les ressorts ferment la vanne



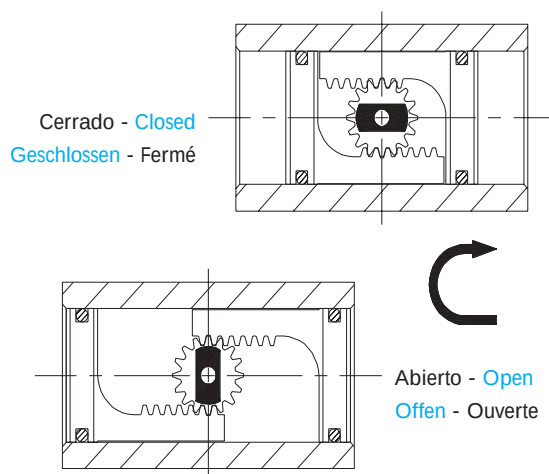
**B** Muelles cierran la válvula - **Springs Closed the Valve**  
 Die federn (schliessen) das ventil - Les ressorts ferment la vanne



**C** Muelles abren la válvula - **Springs open the Valve**  
 Die federn oeffnen das ventil - Les ressorts ouvrent la vanne



**D** Muelles abren la válvula - **Springs open the Valve**  
 Die federn oeffnen das ventil - Les ressorts ouvrent la vanne



Vista Superior: Comprobar la posición de la entalla superior del piñón.

Top view: Note position of Shaft upper key.

Aufsicht: Beobachten sie die stellung des oberen schüssels des ritzels.

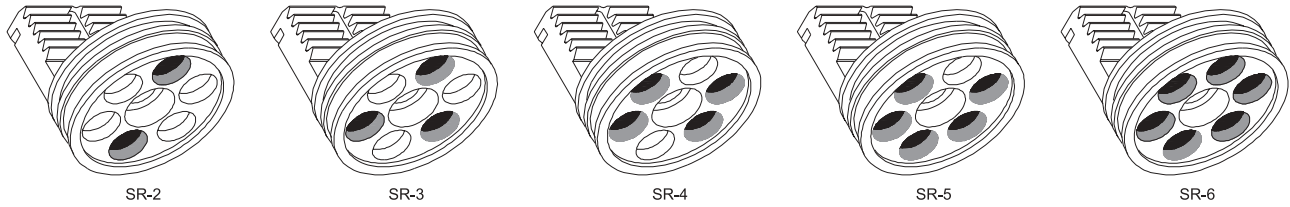
Vue de dessus: Observer la position de la clé supérieure du pignon.

### PARES ACTUADORES DOBLE EFECTO EN Nm - DOUBLE ACTING ACTUATORS TORQUE OUPUT IN Nm

### DREHMOMENT Nm FÜR DER DOPPELTWIRKENDE SCHWENKANTRIEBE - COUPLE ACTIONNEURS DOUBLE EFFET EN Nm

| Modelo<br>Model<br>Modèle | PRESIÓN DE ALIMENTACIÓN DE AIRE EN bar AIR SUPPLY IN bar<br>LUFTSPEISUNG IN bar PRESSION D'AIR MOTEUR EN bar |        |        |        |        |        |        |        | Peso - Weight<br>Gewicht - Poids |
|---------------------------|--------------------------------------------------------------------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|----------------------------------|
|                           | 3                                                                                                            | 4      | 5      | 6      | 7      | 8      | 9      | 10     |                                  |
| CH032                     | -                                                                                                            | 5.0    | 6.3    | 7.6    | 8.8    | 10     | 11.4   | 12.6   | 0,420 Kgr.                       |
| CH042                     | 6.5                                                                                                          | 8.7    | 10.9   | 13.0   | 15.2   | 17.3   | 19.5   | 21.7   | 0,870 Kgr.                       |
| CH050                     | 9.2                                                                                                          | 12.3   | 15.4   | 18.5   | 21.5   | 24.6   | 27.7   | 30.8   | 1,070 Kgr.                       |
| CH063                     | 16.5                                                                                                         | 22.0   | 27.5   | 33.0   | 38.5   | 44.0   | 49.5   | 55.0   | 1,600 Kgr.                       |
| CH075                     | 35.1                                                                                                         | 46.8   | 58.5   | 70.2   | 81.9   | 93.6   | 105.3  | 117.0  | 2,900 Kgr.                       |
| CH085                     | 53.4                                                                                                         | 71.2   | 89.0   | 106.9  | 124.7  | 142.4  | 160.3  | 178.1  | 4,200 Kgr.                       |
| CH100                     | 89.2                                                                                                         | 110.9  | 138.6  | 166.4  | 194.1  | 221.8  | 249.5  | 277.3  | 5,800 Kgr.                       |
| CH115                     | 137.2                                                                                                        | 183.0  | 228.7  | 274.5  | 320.2  | 366.0  | 411.7  | 457.5  | 9,200 Kgr.                       |
| CH125                     | 180.5                                                                                                        | 240.7  | 300.9  | 361.1  | 421.2  | 481.4  | 541.6  | 601.8  | 11,900 Kgr.                      |
| CH145                     | 260.1                                                                                                        | 346.8  | 433.5  | 520.2  | 606.9  | 693.6  | 780.3  | 867.0  | 15,500 Kgr.                      |
| CH160                     | 355.5                                                                                                        | 473.4  | 591.7  | 710.1  | 828.4  | 946.8  | 1065.1 | 1183.5 | 20,500 Kgr.                      |
| CH180                     | 479.0                                                                                                        | 638.6  | 798.3  | 958.0  | 1118   | 1277   | 1437   | 1597   | 30,500 Kgr.                      |
| CH200                     | 665.6                                                                                                        | 887.5  | 1109.4 | 1333.3 | 1553.1 | 1775.0 | 1996.9 | 2218.8 | 43,000 Kgr.                      |
| CH240                     | 1117.6                                                                                                       | 1490.2 | 1862.7 | 2235.3 | 2607.8 | 2980.4 | 3352.9 | 3725.4 | 60,000 Kgr.                      |
| CH270                     | 1617.6                                                                                                       | 2156.8 | 2696.0 | 3235.2 | 3774.4 | 4313.6 | 4852.8 | 5392.0 | 94,000 Kgr.                      |

**POSICIONAMIENTO CORRECTO DE LOS MUELLES - RIGHT POSITION OF SPRINGS**  
**RICHTIGE STELLUNG FÜR DIE FEDER - POSITION CORRECTE DES RESSORT**



**PARES ACTUADORES SIMPLE EFECTO EN NM - SPRING RETURN ACTUATORS TORQUE OUTPUT IN NM**

**DREHMOMENT NM FÜR EINFACHWIRKENDE SCHENKANTREBE - COUPLE DES ACTIONNEURS SIMPLE EFFET EN NM**

| Modelo<br>Model<br>Model<br>Modèle | PRESIÓN DE ALIMENTACIÓN DE AIRE EN bar    AIR SUPPLY IN bar<br>LUFTSPEISUNG IN bar    PRESSION D'AIR MOTEUR EN bar |       |        |        |        |        |        |        |        |        |        |        |                                                                  |        | Peso<br>Weight<br>Gewicht<br>Poids |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------------------------------------------------------------------|--------|------------------------------------|
|                                    | 3                                                                                                                  |       | 4      |        | 5      |        | 6      |        | 7      |        | 8      |        | Para muelles<br>Spring torque<br>Federlauf<br>Couple de ressorts |        | Kgr.                               |
|                                    | 0°                                                                                                                 | 90°   | 0°     | 90°    | 0°     | 90°    | 0°     | 90°    | 0°     | 90°    | 0°     | 90°    | 0°                                                               | 90°    |                                    |
| 042 SR 2/2                         | 4.0                                                                                                                | 2.0   | 6.2    | 4.2    | 8.4    | 6.4    | 10.6   | 8.6    | 12.7   | 10.7   | 14.9   | 12.9   | 4.5                                                              | 2.5    | 0.890                              |
| 042 SR 3/3                         |                                                                                                                    |       | 5.0    | 2.0    | 7.1    | 4.1    | 9.3    | 6.3    | 11.5   | 8.5    | 13.7   | 10.7   | 6.8                                                              | 3.8    | 0.910                              |
| 042 SR 4/4                         |                                                                                                                    |       |        |        |        |        | 8.1    | 4.1    | 10.2   | 6.2    | 12.4   | 8.4    | 9.0                                                              | 5.0    | 0.930                              |
| 050 SR 3/3                         | 5.7                                                                                                                | 3.5   | 8.9    | 6.6    | 12.0   | 9.6    | 15.1   | 12.7   | 18.1   | 15.7   | 21.2   | 18.8   | 5.7                                                              | 3.5    | 1.135                              |
| 050 SR 4/4                         |                                                                                                                    |       | 7.7    | 4.7    | 10.8   | 7.7    | 13.9   | 10.8   | 16.9   | 13.8   | 20.0   | 16.9   | 7.7                                                              | 4.7    | 1.160                              |
| 050 SR 5/5                         |                                                                                                                    |       |        |        | 9.6    | 5.8    | 12.7   | 8.9    | 15.7   | 11.9   | 18.8   | 15.0   | 9.6                                                              | 5.8    | 1.180                              |
| 050 SR 6/6                         |                                                                                                                    |       |        |        | 8.4    | 3.9    | 11.5   | 7.0    | 14.5   | 10.0   | 17.6   | 13.1   | 11.5                                                             | 7.0    | 1.200                              |
| 063 SR 3/3                         | 9.4                                                                                                                | 6.3   | 14.9   | 11.7   | 20.4   | 17.2   | 25.9   | 22.7   | 31.4   | 28.2   | 36.9   | 33.7   | 10.2                                                             | 7.2    | 1.700                              |
| 063 SR 4/4                         |                                                                                                                    |       | 12.3   | 8.3    | 17.8   | 13.8   | 23.3   | 19.3   | 28.8   | 24.8   | 34.3   | 30.3   | 13.7                                                             | 9.7    | 1.830                              |
| 063 SR 5/5                         |                                                                                                                    |       |        |        | 15.4   | 10.4   | 20.9   | 15.9   | 26.4   | 21.4   | 31.9   | 26.9   | 17.1                                                             | 12.1   | 1.870                              |
| 063 SR 6/6                         |                                                                                                                    |       |        |        | 13.0   | 7.0    | 18.5   | 12.5   | 24.0   | 18.0   | 29.5   | 23.5   | 20.5                                                             | 14.5   | 1.800                              |
| 075 SR 3/3                         | 22.5                                                                                                               | 12.6  | 34.2   | 24.4   | 46.0   | 36.1   | 57.7   | 47.8   | 69.4   | 59.5   | 81.1   | 71.2   | 22.5                                                             | 12.6   | 3.140                              |
| 075 SR 4/4                         |                                                                                                                    |       | 30.0   | 16.9   | 41.8   | 28.6   | 53.5   | 40.3   | 65.2   | 52.0   | 76.9   | 63.7   | 30.0                                                             | 16.9   | 3.210                              |
| 075 SR 5/5                         |                                                                                                                    |       |        |        | 37.6   | 21.1   | 49.3   | 32.8   | 61.0   | 44.5   | 72.7   | 56.2   | 37.6                                                             | 21.1   | 3.290                              |
| 075 SR 6/6                         |                                                                                                                    |       |        |        | 33.4   | 13.6   | 45.1   | 25.3   | 56.8   | 37.0   | 68.5   | 48.7   | 45.1                                                             | 25.3   | 3.370                              |
| 085 SR 3/3                         | 34.5                                                                                                               | 18.9  | 52.4   | 36.7   | 70.2   | 54.5   | 88.0   | 72.3   | 105.8  | 90.1   | 123.6  | 107.9  | 34.5                                                             | 18.9   | 4.520                              |
| 085 SR 4/4                         |                                                                                                                    |       | 46.1   | 25.2   | 63.9   | 43.0   | 81.7   | 60.8   | 99.5   | 78.6   | 117.3  | 96.4   | 46.1                                                             | 25.2   | 4.620                              |
| 085 SR 5/5                         |                                                                                                                    |       |        |        | 57.6   | 31.5   | 75.4   | 49.3   | 93.2   | 67.1   | 111.0  | 84.9   | 57.6                                                             | 31.5   | 4.730                              |
| 085 SR 6/6                         |                                                                                                                    |       |        |        | 51.5   | 20.0   | 69.1   | 37.8   | 86.9   | 55.6   | 104.7  | 73.4   | 69.1                                                             | 37.8   | 4.830                              |
| 100 SR 3/3                         | 53.2                                                                                                               | 30.0  | 80.9   | 57.7   | 108.7  | 85.4   | 136.4  | 113.1  | 164.1  | 140.8  | 191.8  | 168.5  | 53.2                                                             | 30.0   | 6.310                              |
| 100 SR 4/4                         |                                                                                                                    |       | 70.9   | 40.0   | 98.7   | 67.7   | 126.4  | 95.4   | 154.1  | 123.1  | 181.8  | 150.8  | 70.9                                                             | 40.0   | 6.480                              |
| 100 SR 5/5                         |                                                                                                                    |       |        |        | 88.7   | 50.0   | 116.4  | 77.7   | 144.1  | 105.4  | 171.8  | 133.1  | 88.7                                                             | 50.0   | 6.650                              |
| 100 SR 6/6                         |                                                                                                                    |       |        |        | 78.7   | 32.2   | 106.4  | 60.0   | 134.1  | 87.7   | 161.8  | 115.4  | 106.4                                                            | 60.0   | 6.820                              |
| 115 SR 3/3                         | 84.3                                                                                                               | 53.0  | 130.0  | 98.8   | 175.8  | 144.5  | 221.6  | 190.3  | 267.3  | 236.0  | 313.0  | 281.7  | 84.3                                                             | 53.0   | 9.750                              |
| 115 SR 4/4                         |                                                                                                                    |       | 112.3  | 70.7   | 158.1  | 116.4  | 203.9  | 162.2  | 249.6  | 207.9  | 295.3  | 253.6  | 112.3                                                            | 70.7   | 9.940                              |
| 115 SR 5/5                         |                                                                                                                    |       |        |        | 140.4  | 88.3   | 186.2  | 134.1  | 231.9  | 179.8  | 277.6  | 225.5  | 140.4                                                            | 88.3   | 10.120                             |
| 115 SR 6/6                         |                                                                                                                    |       |        |        | 122.7  | 60.2   | 168.5  | 106.0  | 214.2  | 151.7  | 259.9  | 197.4  | 168.5                                                            | 106.0  | 10.300                             |
| 125 SR 3/3                         | 116.8                                                                                                              | 63.7  | 177.0  | 123.9  | 237.3  | 184.1  | 297.5  | 244.2  | 357.6  | 304.3  | 417.7  | 364.4  | 116.8                                                            | 63.7   | 13.050                             |
| 125 SR 4/4                         |                                                                                                                    |       | 155.7  | 85.0   | 216.0  | 145.2  | 276.2  | 205.3  | 336.3  | 265.4  | 396.4  | 325.5  | 155.7                                                            | 85.0   | 13.440                             |
| 125 SR 5/5                         |                                                                                                                    |       |        |        | 194.7  | 106.3  | 254.9  | 166.4  | 315.0  | 226.5  | 375.1  | 286.6  | 194.7                                                            | 106.3  | 13.820                             |
| 125 SR 6/6                         |                                                                                                                    |       |        |        | 173.4  | 67.4   | 233.6  | 127.5  | 293.7  | 187.6  | 353.8  | 247.7  | 233.6                                                            | 127.5  | 14.200                             |
| 145 SR 3/3                         | 158.0                                                                                                              | 92.0  | 245.0  | 179.0  | 332.0  | 265.0  | 418.0  | 352.0  | 505.0  | 439.0  | 592.0  | 526.0  | 168.0                                                            | 102.0  | 17.250                             |
| 145 SR 4/4                         |                                                                                                                    |       | 211.0  | 123.0  | 298.0  | 210.0  | 384.0  | 269.0  | 471.0  | 383.0  | 558.0  | 470.0  | 224.0                                                            | 136.0  | 17.840                             |
| 145 SR 5/5                         |                                                                                                                    |       |        |        | 264.0  | 154.0  | 350.0  | 240.0  | 437.0  | 327.0  | 524.0  | 414.0  | 280.0                                                            | 170.0  | 18.420                             |
| 145 SR 6/6                         |                                                                                                                    |       |        |        | 230.0  | 98.0   | 316.0  | 184.0  | 403.0  | 271.0  | 490.0  | 358.0  | 336.0                                                            | 204.0  | 19.000                             |
| 160 SR 3/3                         | 222.4                                                                                                              | 132.6 | 340.7  | 251.0  | 459.1  | 369.3  | 577.4  | 487.6  | 695.7  | 605.9  | 814.0  | 724.2  | 222.4                                                            | 132.6  | 17.250                             |
| 160 SR 4/4                         |                                                                                                                    |       | 296.5  | 176.9  | 414.9  | 295.2  | 533.2  | 413.5  | 651.5  | 531.8  | 769.8  | 650.1  | 296.5                                                            | 176.9  | 17.840                             |
| 160 SR 5/5                         |                                                                                                                    |       |        |        | 370.7  | 221.1  | 489.0  | 339.4  | 607.3  | 457.7  | 725.6  | 576.0  | 370.7                                                            | 221.1  | 18.420                             |
| 160 SR 6/6                         |                                                                                                                    |       |        |        | 326.5  | 147.0  | 444.8  | 265.3  | 563.1  | 383.6  | 681.4  | 501.9  | 444.8                                                            | 265.3  | 24.900                             |
| 180 SR 3/3                         | 287.9                                                                                                              | 191.1 | 447.6  | 350.7  | 607.3  | 510.4  | 766.9  | 670.0  | 926.8  | 829.7  | 1140.0 | 724.2  | 287.9                                                            | 191.0  | 33.620                             |
| 180 SR 4/4                         |                                                                                                                    |       | 383.9  | 254.7  | 543.6  | 414.4  | 703.3  | 574.0  | 862.9  | 733.7  | 769.8  | 650.1  | 383.9                                                            | 254.7  | 34.660                             |
| 180 SR 5/5                         |                                                                                                                    |       |        |        | 479.9  | 318.4  | 639.6  | 478.1  | 792.2  | 637.7  | 725.6  | 576.0  | 479.9                                                            | 318.4  | 35.700                             |
| 180 SR 6/6                         |                                                                                                                    |       |        |        | 416.2  | 222.4  | 575.9  | 382.1  | 735.6  | 641.8  | 681.4  | 501.9  | 575.9                                                            | 382.1  | 36.740                             |
| 200 SR 3/3                         | 423.6                                                                                                              | 242.0 | 644.7  | 463.8  | 867.4  | 685.8  | 1089   | 907.7  | 1311   | 1130   | 1533   | 1351   | 423.6                                                            | 242.0  | 48.000                             |
| 200 SR 4/4                         |                                                                                                                    |       | 564.8  | 322.6  | 786.7  | 544.6  | 1008   | 766.5  | 1230   | 988.4  | 1452   | 1209   | 564.8                                                            | 322.6  | 49.670                             |
| 200 SR 5/5                         |                                                                                                                    |       |        |        | 706.0  | 403.4  | 927.9  | 625.3  | 1150   | 847.2  | 1372   | 1068   | 706.0                                                            | 403.4  | 51.330                             |
| 200 SR 6/6                         |                                                                                                                    |       |        |        | 625.3  | 262.2  | 847.2  | 484.1  | 1069   | 706.0  | 1291   | 927.0  | 847.2                                                            | 484.1  | 53.000                             |
| 240 SR 3/3                         | 664.0                                                                                                              | 453.6 | 1036.6 | 826.2  | 1409.1 | 1198.7 | 1781.7 | 1571.2 | 2154.2 | 1943.8 | 2526.8 | 2316.3 | 664.0                                                            | 453.6  | 67.200                             |
| 240 SR 4/4                         |                                                                                                                    |       | 885.4  | 604.8  | 1257.9 | 977.4  | 1630.5 | 1349.9 | 2003.0 | 1722.5 | 2375.6 | 2095.0 | 885.4                                                            | 604.8  | 69.600                             |
| 240 SR 5/5                         |                                                                                                                    |       |        |        | 1106.7 | 756.0  | 1479.3 | 1128.6 | 1851.8 | 1501.1 | 2224.4 | 1873.7 | 1106.7                                                           | 756.0  | 72.000                             |
| 240 SR 6/6                         |                                                                                                                    |       |        |        | 955.5  | 534.7  | 1328.1 | 907.2  | 1700.6 | 1279.8 | 2073.2 | 1652.3 | 1328.1                                                           | 907.2  | 74.400                             |
| 270 SR 3/3                         | 912.5                                                                                                              | 705.1 | 1451.7 | 1244.3 | 1990.9 | 1783.5 | 2530.1 | 2322.7 | 3069.3 | 2861.9 | 3608.5 | 3401.1 | 912.5                                                            | 705.1  | 103.500                            |
| 270 SR 4/4                         |                                                                                                                    |       | 1216.7 | 940.2  | 1755.9 | 1479.4 | 2295.1 | 2018.6 | 2834.3 | 2557.8 | 3373.5 | 3097.0 | 1216.6                                                           | 940.1  | 106.660                            |
| 270 SR 5/5                         |                                                                                                                    |       |        |        | 1520.9 | 1175.5 | 2060.1 | 1714.4 | 2599.3 | 2144.4 | 3138.5 | 2792.8 | 1520.8                                                           | 1175.1 | 109.830                            |
| 270 SR 6/6                         |                                                                                                                    |       |        |        | 1285.8 | 871.0  | 1825.0 | 1410.2 | 2364.2 | 1953.6 | 2903.4 | 2488.6 | 1825.0                                                           | 1410.2 | 113.000                            |