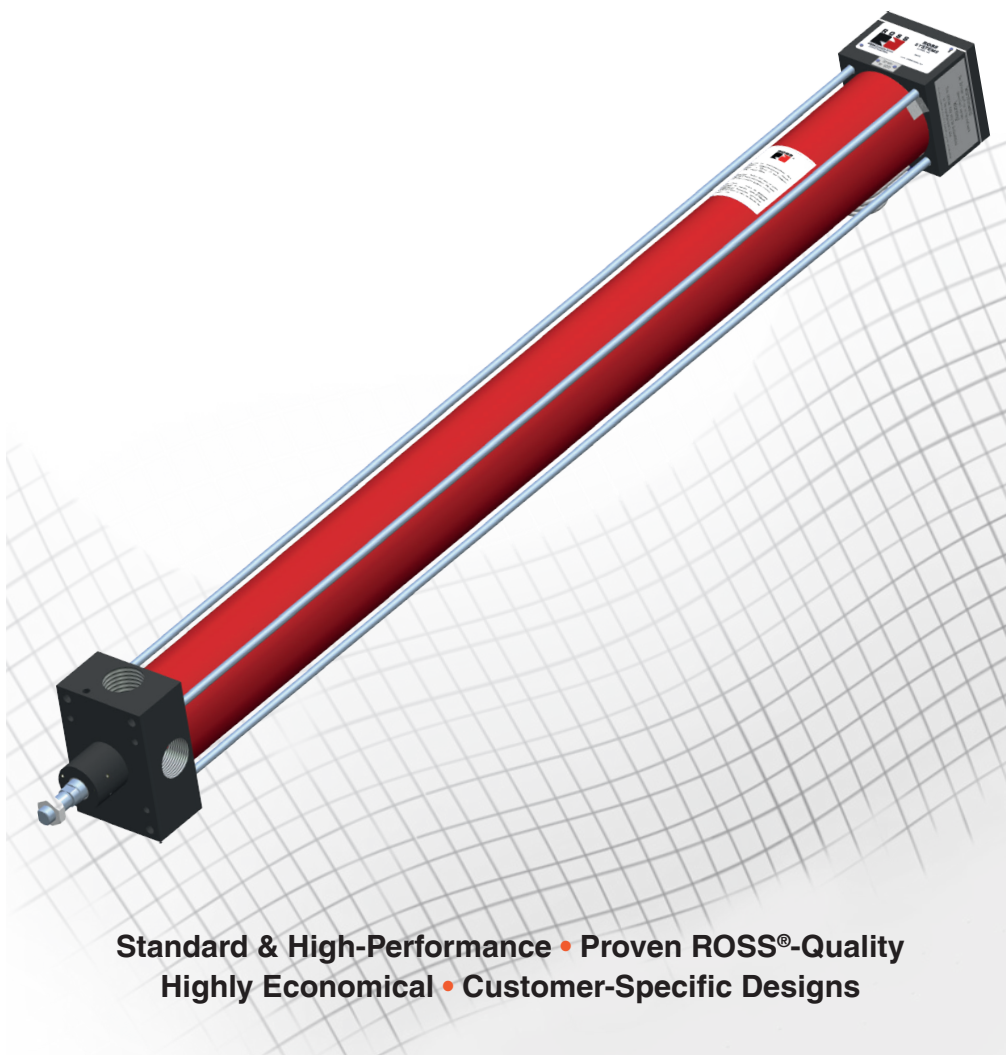


# **Pneumatic Cylinders for Counterbalancing Tooling Machines**



**Standard & High-Performance • Proven ROSS®-Quality  
Highly Economical • Customer-Specific Designs**

# General Information

## Highly dynamic machine counterbalance — fast, safe and economical.

Counterbalance cylinders are used in modern manufacturing environments in order to accelerate process dynamics of vertical axes on tooling machines. In close cooperation with Technische Universität Darmstadt, Germany, as well as several well-known component suppliers, premium pneumatics manufacturer ROSS developed an innovative cylinder system which fully meets the requirements of this highly complex process chain. The system is remarkably fast, safe and economical and furnished proof of its high performance level by fulfilling all criteria of the Renishaw test.

In connection with highly dynamic linear motors, these cylinders are a technical must in the attempt to keep up with, or even reduce, processing times demanded in state-of-the-art manufacturing. ROSS offers two basic models: the particularly cost-efficient **Standard-Version** for low-speed applications as well as the **Hidyn-Series** for very high speeds (up to 4 meters per second). The above mentioned product achievement is used globally, customers specifying the innovative ROSS counterbalance cylinder system include reputed carmakers worldwide.

### Standard-Series (aluminum) for low-speed applications

- Lightweight
- Operating pressure up to 10 bar
- Maximum processing speed:
  - 1,25 m/s (when using two pressure ports)
  - 0,75 m/s (when using one pressure port)
- Maximum acceleration 10 m/s<sup>2</sup>
- Lubrication for life, ex works
- Smooth-moving principle
- Minimum need for maintenance



Subject to technical change

### Hidyn-Series (steel) for high-speed applications

- Operating pressure up to 16 bar
- Maximum processing speed 4 m/s
- Maximum acceleration 30 m/s<sup>2</sup>
- In case of oscillating movements, work frequency up to 15 Hz
- Integrated lubrication for long service life
- Friction-optimized



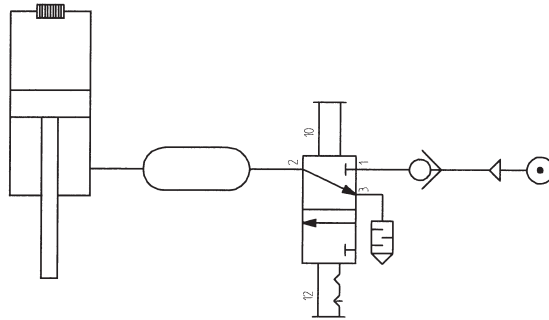
Subject to technical change

# Pulling System

## Description

For counterbalancing a vertical axis on tooling machines and handling systems, the so-called „pulling system“ has proved to be an excellent choice. As a special feature, this model is designed in such a way that a brake can be mounted as a falling security to the lower end of the cylinder head. Due to the overall weight of the cylinder head at the rod-end, the brake and the piston rod to the cylinder tube as well as the end cap, the centre of gravity of the whole system is shifted downwards.

## Schematic

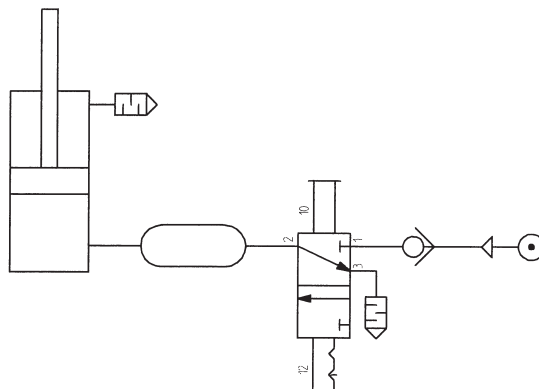


# Pushing System

## Description

The so-called „pushing system“ for counterbalancing is used when a maximum compensation force is needed for a minimum cylinder diameter; this is achieved through the larger piston surface. A fortified piston rod can be used in a pushing system in order to enhance bending protection for the piston rod. In this installation, the overall centre of gravity is shifted upwards (in particular, when a piston rod brake is used) with the result that the load capacity of the cylinder components is enhanced.

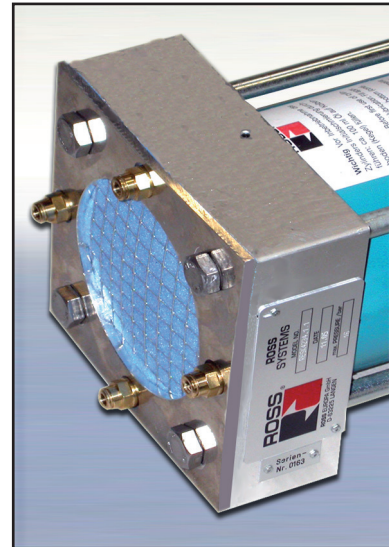
## Schematic



# Lubrication Options

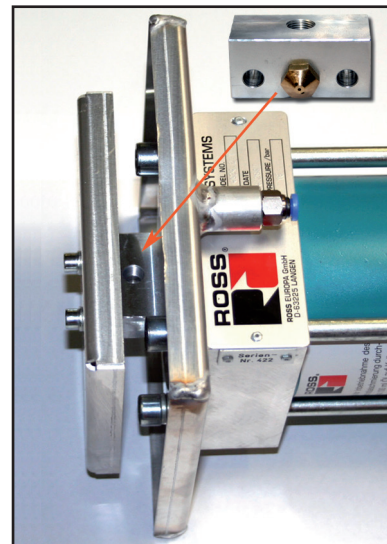
## Dosage cartridge

Lubrication through a dosage cartridge integrated in the cylinder cover; simple design principle; no need for an external dosage unit.



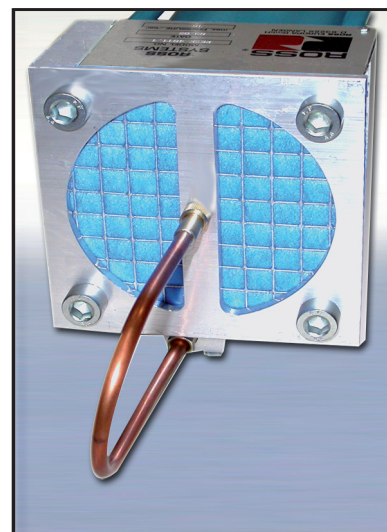
## Drip nozzle

Simple design; excellent distribution; Excessive lubrication should be avoided.



## Spraying nozzle

Excellent sprinkling of cylinder wall; additional mounting requirement must be taken into consideration for pneumatic piloting.



# Ordering / General Information

## Order Code for ROSS-Counterbalance Cylinder Systems

<b>HSC</b>	<b>12</b>	<b>H</b>	<b>D</b>	<b>4</b>	<b>0</b>	<b>0500</b>	<b>278</b>	<b>137</b>	<b>000</b>
<b>Model:</b> Special cylinder for counter-balance systems	<b>Piston Ø:</b> 05 = 50 06 = 63 08 = 80 10 = 100 12 = 125 16 = 160 20 = 200	<b>Product Series:</b> S = Standard H = Hidyn	<b>Design</b> D = Pushing Z = Pulling	<b>Ø Piston rod:</b> 2 = 20 3 = 25 4 = 32 5 = 40	<b>Lubrica-tion:</b> 0 = None 1 = Droplets 2 = Spray 3 = Volume distribution	<b>Stroke</b> mm	<b>Length of the piston rod from cylinder head</b> mm	<b>Extension of standardized thread</b> mm	<b>Undefined</b> For specification of customer-driven designs.

### Standard-Thread Length

Piston rod: D =	20 25 32 40
Thread length [mm]	32 40 54 72
Tool width at the piston rod	17 22 27 36

Other dimensions on request.  
Subject to technical change.

## Premium Pneumatics from ROSS EUROPA® — Top Quality since 1960.

ROSS EUROPA GmbH has established itself on the European market as an innovative pneumatics source strictly focusing on quality products and services.

### Products and services at a glance:

- Valves for base-mounting (incl. ISO- and ANSI-standards)
- Poppet valves for inline mounting
- Safety valves according to ISO 13849-1, Cat. 4, PL e
- Double valves/press safety valves, BG-certified
- A complete line of air preparation products
- Pneum. cylinders acc. to ISO, power cylinders, special models
- Pinch valves, valves for vacuum service, special valves
- Compact valves
- Proportional valves
- A broad line of accessories
- ZeroCon® stainless steel connections
- Complete control solutions
- ROSS/FLEX®-service; „tailor-made“ solutions
- Industry-specific pneumatics (e.g. glass, aluminum)
- Comprehensive consulting services, project management
- „Your own Pneumatics“. We will be glad to work out economic solutions or complete systems for your specific applications. Our specialists look forward to your request.

### WARRANTY and CAUTIONS

Standard ROSS warranty and cautions apply.  
For further information call ROSS EUROPA® or your nearest ROSS service point.



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