Hydraulic Cylinder with Mechanical Interlock

- **New functional principle**
- **Large locking forces**
- **Easy readjustment**
- **Monitoring of interlocking**

This hydraulic cylinder has been engineered for functions in which the piston rod and its attached components must be held precisely and safe in their end position, even under the effect of large forces.

The mechanical interlock of this HYDRO*PNEU* cylinder blocks the piston rod with positive locking. Even in the case of a hydraulic pressure drop, safe interlocking is guaranteed.

Very high interlocking forces can be realized with this interlocking mechanism. The interlock can be integrated into the front end or rear end position of the piston rod.

The compact design of the cylinder compared to conventional interlocking solutions facilitates the implementation of complex forms of construction with elaborate motion sequences. The interlocking mechanism can be integrated into many HYDRO*PNEU* cylinders.

The interlock works automatically as part of the hydraulic impact on the piston or on the side of the piston rod and requires no further control.

A major advantage of the HYDRO*PNEU* solution is the possibility of adjusting the locking position even without any disassembly. It is possible to react to setting characteristics or thermal expansions without having to stop the production for a long time.

This cuts down setup time and safes money.

Precision in Motion

HYDRO*PNEU*
partner for hydraulics
cylinders - drives - special solutions

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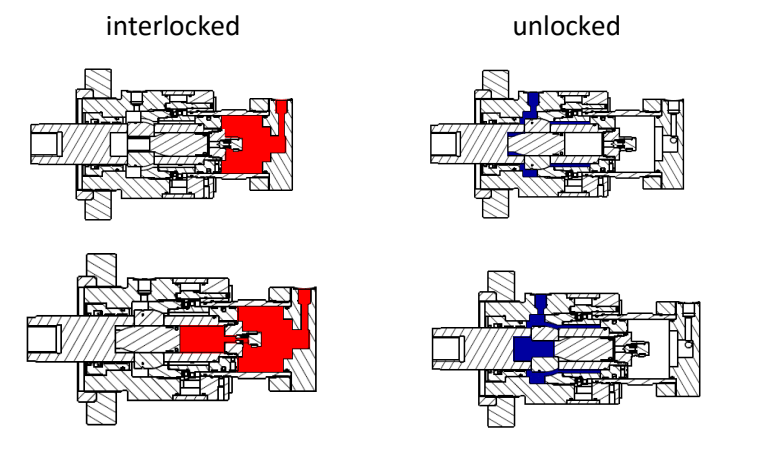

- **Defined sequence of interlocking steps**
- **Interlock function independent from installation position**
- **Setting of end position without disassembly of components**

Fields of Duties and Requirements:

Interlock of the piston rod is needed in many areas of hydraulics. In the area of die casting, devices such as gate valves and core pulls are regularly interlocked, so that the mold or the core can't be moved by the pressure of the liquid metal and a correct casting result is achieved.

Furthermore, the piston rod interlock is used in areas where loads only need to be moved infrequently. In these cases, the interlock ensures that the pressure supply to the cylinder does not have to run permanently.

Even in the case of a hydraulic breakdown, the mechanical piston rod interlock of HYDRO*PNEU* keeps great loads in their position.

Setting range installed: **+/- 3 mm**

Information retrieval: cylinder retracted
cylinder extended
cylinder interlocked

Adjustments of the piston rod and of the mounting flange to suit individual requirements are possible at any time.

Technical Data	Cylinder Sizes										
	Piston Ø		**32**	**40**	**50**	**63**	**80**	**100**	**125**	**160**	**200**
	Piston Rod Ø (mm)		28	28	36	45	56	70	90	110	140
	Piston Area A_1 (cm^2)		8.04	12.56	19.63	31.17	50.26	78.53	122.71	201.06	314.15
	Annulus Area A_2 (cm^2)		1.88	6.40	10.17	15.26	25.63	40.05	59.10	106.02	160.22
	Locking Force (kN)	max.	50	145	225	360	570	880	1290	2150	3400
	Pushing Force (kN)	140 bar	11.2	17.6	27.5	43.6	70.4	109.9	171.8	281.5	439.8
	Pre-stressing Force (kN)	160 bar	12.9	20.1	31.4	49.9	80.4	125.7	196.3	321.7	502.6
	Pulling Force (kN)	160 bar	7.8	10.3	15.1	24.4	41.0	64.1	94.5	169.6	256.3

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