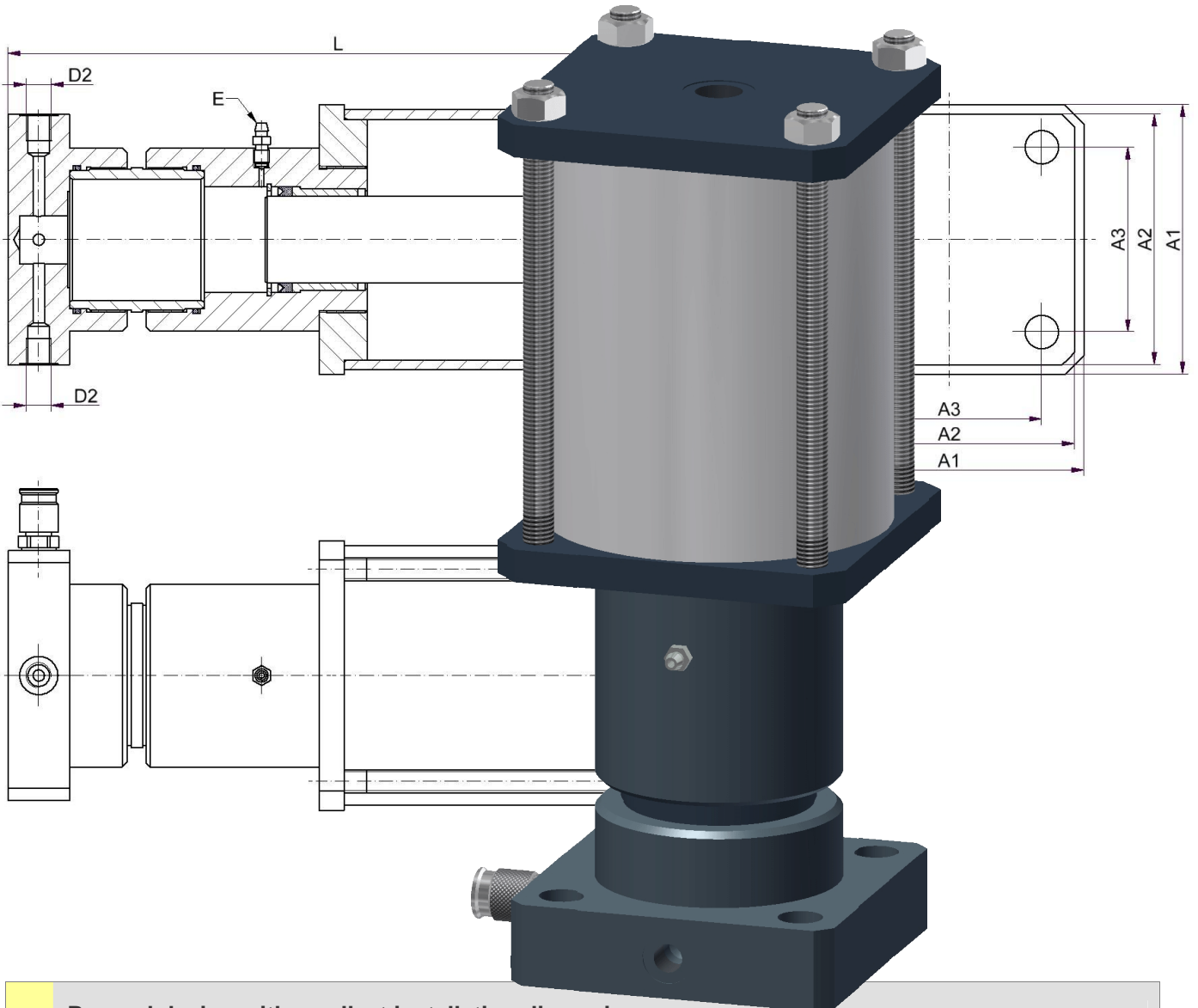
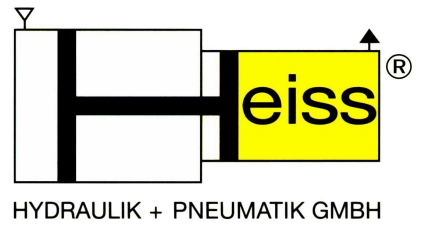


# Booster Cylinder PHU



- Rugged design with smallest installation dimensions
- Boosting of pneumatic pressures to multiple times higher hydraulic pressures
- Ratio of amplification up to 1 : 25 and volumes up to 6400 cm<sup>3</sup>
- Choice of 4 different amplification ratios with 7 different volumes each
- Seal grooves and diameter according to ISO 5597/1 and DIN ISO 7425/1
- Available for use with water

## General information

The invention of the booster cylinder is not new. Its use was limited to few specific applications due to design flaws and was pushed aside by the score of hydro-aggregates used. Modern seal technology and important design improvements as well as the demand for energy efficient, environmental friendly and cost effective solutions lead now to optimal capabilities of booster cylinders.

Combination options to the point of compact power units arise in conjunction with our proven hydraulic elements like the standard cylinder series **SZ 100, SZ 160, SZ 250** the short stroke cylinders **HBZ 500, HWZ 400, HKZ 500** and the hydraulic rotational drive cylinders **HDZ 120**.

### Individual advantages:

- Realization of high forces with small dimensions of cylinders.
- No energy consumption during extended duration or constant pressure applications
- Exact continuous feed as well as synchronous speed control
- Maintenance-free, explosion-proof, closed loop control.
- Operation with water allows applications, which reduce the cost in comparison to a hydraulic power unit considerably.

## Operating conditions

**Operating pressure:** on air side (= primary side) max. 10bar, on oil side (secondary side) depending on the amplification ratio chosen

**Operating fluids:** filtered and lubricated air on primary side, on secondary side hydraulic oil on the basis of mineral oil for example H, HL, HLP-oils per DIN 51524/51525. Other operating fluids like fire resisting fluids or water may be used upon request.

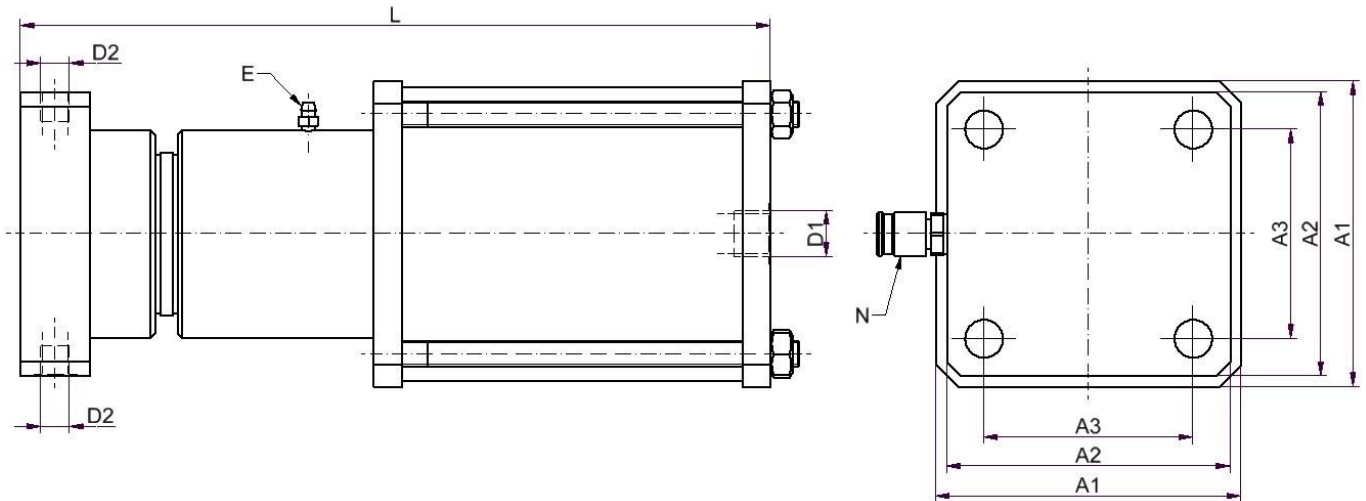
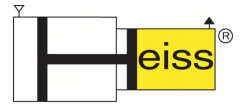
**Operating temperature:** By default the Booster Cylinder PHU is equipped with seals for a temperature range from -20°C to +80°C. High temperature resistant seals can be fitted without changes in design. If required please add order-index "X6" when ordering (see special designs – type designations).

**Piston travel speed:** Maximum 0,5 m/s, please contact us for higher speeds.

**Special designs:** The most common special equipment with the related order-index "X" is mentioned in the type designation section.

Additional piston sizes, multi-position rotational drive cylinders or rotational drive cylinders with position encoding and other configurations are available upon request.

# Booster Cylinder PHU



E = vent oil side

N = refill oil side via miniatur test port M16x2

Type designation	Amplification ratio i	Displacement volume [cm <sup>3</sup> ]	Primary pressure P <sub>air</sub> max. [bar]	Secondary pressure P <sub>oil</sub> max. [bar]	Port D1 air	Port D2 oil (2x)	L	A1	A2	A3	D3
PHU 80 / 40	1:4	100	10	40	G1/2"	G1/4"	300	100	90	62	11
PHU 100 / 50		200			G1/2"	G1/4"	385	110	100	70	13,5
PHU 125 / 63		400			G1/2"	G1/2"	414	140	110	80	13,5
PHU 160 / 80		800			G3/4"	G1/2"	450	180	130	96	17,5
PHU 200 / 100		1600			G3/4"	G1/2"	560	220	150	115	17,5
PHU 250 / 125		3200			G1"	G1/2"	710	280	180	150	17,5
PHU 320 / 160		6400			G1"	G3/4"	860	350	220	190	17,5
PHU 80 / 28	1:8	50	10	80	G1/2"	G1/4"	300	100	100	70	13,5
PHU 100 / 36		100			G1/2"	G1/4"	385	110	110	80	13,5
PHU 125 / 45		200			G1/2"	G1/4"	414	140	130	96	17,5
PHU 160 / 56		400			G3/4"	G1/2"	450	180	150	115	17,5
PHU 200 / 70		800			G3/4"	G1/2"	560	220	150	115	17,5
PHU 250 / 90		1600			G1"	G1/2"	710	280	150	115	17,5
PHU 320 / 110		3200			G1"	G1/2"	860	350	180	150	17,5
PHU 80 / 20	1:16	25	10	160	G1/2"	G1/4"	300	100	50	36	7
PHU 100 / 25		50			G1/2"	G1/4"	385	110	50	36	7
PHU 125 / 32		100			G1/2"	G1/4"	414	140	65	48	9
PHU 160 / 40		200			G3/4"	G1/4"	450	180	90	62	11
PHU 200 / 50		400			G3/4"	G1/4"	560	220	100	70	13,5
PHU 250 / 63		800			G1"	G1/2"	710	280	110	80	13,5
PHU 320 / 80		1600			G1"	G1/2"	860	350	130	96	17,5
PHU 80 / 16	1:25	15	10	250	G1/2"	G1/4"	300	100	65	48	9
PHU 100 / 20		30			G1/2"	G1/4"	385	110	90	62	11
PHU 125 / 25		60			G1/2"	G1/4"	414	140	100	70	13,5
PHU 160 / 32		120			G3/4"	G1/4"	450	180	110	80	13,5
PHU 200 / 40		250			G3/4"	G1/4"	560	220	130	96	17,5
PHU 250 / 50		500			G1"	G1/4"	710	280	150	115	17,5
PHU 320 / 63		1000			G1"	G1/2"	860	350	170	130	17,5

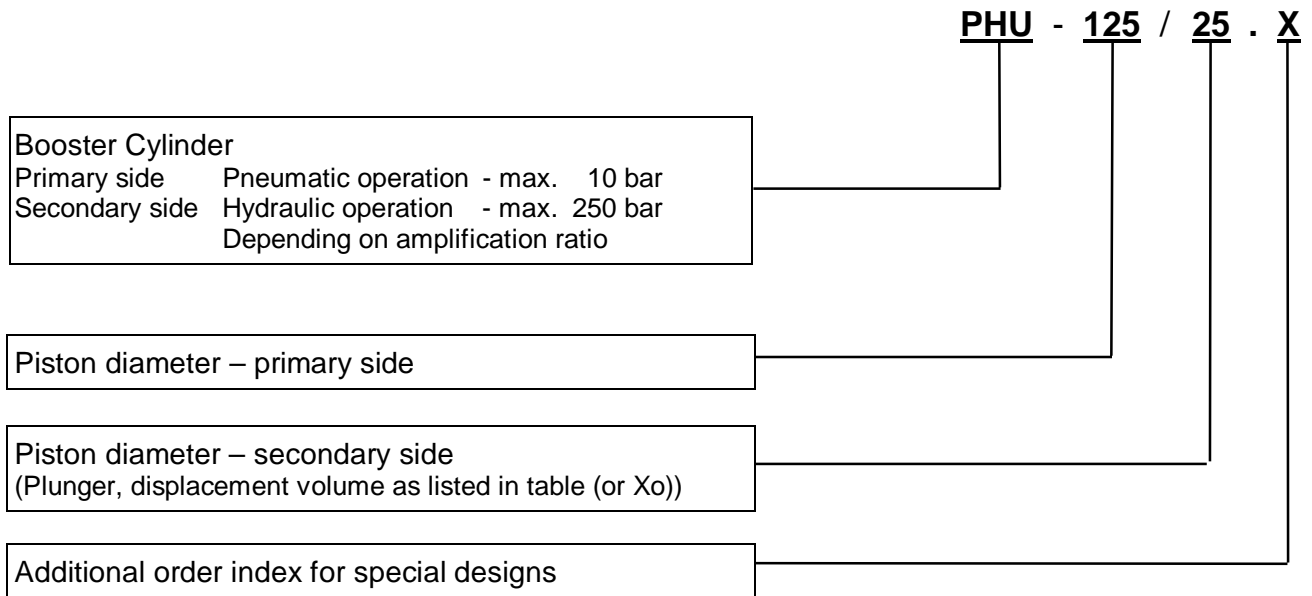
Design subject to change

Revision B\* 15.04.13

# Booster Cylinder PHU



## Order description – Type designation



### Special designs:

- X0 = Enlarged or reduced displacement volume
- X1 = Extreme (deviating from table) amplification ratio
- X2 = Double acting design of the (pneumatic) primary side
- X3 = Automatic oil feeding
- X4 = Limit switch signal for automated oil level monitoring
- X5 = Multi chamber system as metering cylinder for synchronous feed control
- X6 = Special seals for uncommon fluid media  
or heat resistant seals up to 200°C for example Viton
- X7 = Pneumatic – Pneumatic – Operation (PPU)
- X8 = Hydraulic – Hydraulic – Operation (HHU)
- X9 = Special attachment variants
- X10 = Corrosion resistant configuration for operation with water  
(secondary side from stainless steel 1.4301)
- X11 = Miscellaneous

**For ordering cylinder wear part kits please indicate the type designation and the commission number imprinted on the cylinder**

Please consider our additional product range:

Hydraulic short stroke cylinder	<b>HKZ 500</b>	Hydraulic cube cylinder	<b>HWZ 400</b>
Swing clamp cylinder	<b>SSZ 250</b>	Hydraulic-block cylinder	<b>HBZ 500</b>
Booster cylinder	<b>PHU / HHU</b>	Hydraulic compact cylinder	<b>HKZ 160</b>
Standard cylinder series	<b>SZ100, SZ160, SZ250 and SNZ DIN 24554</b>		

**As well as booster cylinders up to 5000 bar, cylinder strips and hydromechanical clamping units, special purpose cylinders with piston diameters up to 500 mm and strokes up to 8000 mm.**