

# The form-tool hire programme

for cartridge cavities

## 1 Description

To assist customers who wish to machine their own cartridge cavities, BUCHER HYDRAULICS AG offers form tools for sale or hire.

Our selling prices are the same as the cost to us.

Our hire charges cover tool cost amortisation and order administration, as well as inspection and moderate re-sharpening after return.

Hire charges:

For a maximum of 4 weeks: EUR 75.00 net, per tool

For each additional week: EUR 30.00 net, per tool



**IMPORTANT!:** a form-tool set normally comprises: 1 x HSS Form Borer  
1 x HM Form Reamer

Damage and exceptional wear:

The Hirer is responsible for the proper storage, handling and use of the tools, as well as adequate packing for return shipment. The tool user must ensure that each finished cavity adheres to the tolerances of the respective cavity drawing. Bucher Hydraulics rejects any liability for insufficient manufacturing results. Wear-and-tear due to normal usage is covered by the above hire charges. In the case of damage, we reserve the right to make an additional charge appropriate to the repair work required. If a repair is not possible, we reserve the right to return the tool (s) to the Hirer, and invoice the full sales price. For unusually heavy wear-and tear, the necessary repair work normally results in an additional charge of approximately 1/3 of the sale price of the tool.

### 1.1 Usage guide (values based on experience)

Material	Machinability			Cutting speed [m/min]		Coolant / Lubricant	
	Good	Fair	Poor	Form borer HSS	Form reamer HM	HSS	HM
Free-cutting steel (11SMnPb30)	●			25 ... 30	12 ... 15	Emulsion or / Cutting oil	
Heat-treatable steel (C45E)		●		15 ... 20	7 ... 10	Emulsion or / Cutting oil	
Grey cast iron (EN-JL1040)	●			18	12 ... 15	Emulsion or / Cutting oil	
SG iron (EN-GJS-400-18)	●			15	7 ... 10	Emulsion or / Cutting oil	
Stainless steel			●	5 ... 10	3 ... 5	Emulsion or / Cutting oil	
Light-metal alloy		●		30 ... 45	15 ... 25	Emulsion or / Cutting oil	



**IMPORTANT!:** to ensure trouble-free operation of the screw-in cartridge in its cavity, we strongly recommend that pilot drilling, form boring, form reaming and cavity thread-cutting are performed in one setup.



**IMPORTANT!:** To use solid carbide tools, the following conditions must be met:

- Stable machine
- Stable clamping of workpieces and tool
- Internal cooling min. 25 bar and 20 l/min

When using solid carbide tools, the cutting speeds must be increased by at least a factor of 2. Further must be noted: cross bores can have a negative effect on cooling capacity and tension transport.

### 1.2 Cavity type and form-tool overview

Cavity type for cartridges valves		Part number	
Typ / Description	Data sheet reference no.	Form borer (HSS / VHM*)	Form reamer (HM / VHM*)
AA / AB	400-P-040101	400 100 034 <sup>3)</sup>	400 100 035 <sup>3)</sup>
AC / AD	400-P-040111	400 100 036 <sup>3)</sup>	400 100 037 <sup>3)</sup>
AE	400-P-040121	400 100 038 <sup>1)</sup>	400 100 039 <sup>1)</sup>
AEZ	400-P-040131	400 100 635 <sup>1)</sup>	400 100 634* <sup>1)</sup>
AG	400-P-040141	400 100 241 <sup>2)</sup>	400 100 242 <sup>1)</sup>
AGA	400-P-040142	400 100 241 <sup>2)</sup>	400 100 242 <sup>1)</sup>
AGS	400-P-040151	400 100 908 <sup>2)</sup>	400 100 920 <sup>2)</sup>
AW <sup>4)</sup>	400-P-040251	400 101 143* <sup>1)</sup> 400 101 145* <sup>1)</sup>	400 101 144* <sup>1)</sup> 400 101 146* <sup>1)</sup>
AY	400-P-040271	400 101 252* <sup>3)</sup>	400 101 253* <sup>1)</sup>
DA	400-P-040161	400 100 040 <sup>3)</sup>	---
AL	400-P-040171	400 100 426 <sup>3)</sup>	400 100 467 <sup>3)</sup>
AM	400-P-040181	400 100 427 <sup>3)</sup>	400 100 466 <sup>3)</sup>
AN	400-P-040191	400 100 324 <sup>3)</sup>	400 100 357 <sup>3)</sup>
ALM	400-P-040201	400 100 550 <sup>3)</sup>	400 100 504 <sup>3)</sup>
AS	400-P-040202	400 100 669 <sup>3)</sup>	---
CA	400-P-060101	400 100 072 <sup>3)</sup>	400 100 073 <sup>3)</sup>
DC	400-P-060111	400 100 050 <sup>3)</sup>	400 100 051 <sup>3)</sup>
DD	400-P-060121	400 100 052 <sup>3)</sup>	400 100 053 <sup>3)</sup>
DF	400-P-060131	400 100 387 <sup>3)</sup>	400 100 362 <sup>3)</sup>
MDD	400-P-060141	400 100 052 <sup>3)</sup>	400 100 053 <sup>3)</sup>
RC	400-P-060151	400 100 058 <sup>3)</sup>	400 100 059 <sup>3)</sup>
RCY	400-P-060161	400 100 060 <sup>3)</sup>	400 100 061 <sup>3)</sup>
DH	400-P-060171	400 101 055 <sup>3)</sup>	400 100 019* <sup>1)</sup>
DJ	400-P-060181	400 100 649 <sup>3)</sup>	400 100 648 <sup>3)</sup>
DN	400-P-060191	400 100 941* <sup>1)</sup>	400 100 940* <sup>1)</sup>
DL	400-P-060201	400 100 950 <sup>3)</sup>	400 100 949* <sup>1)</sup>
DP	400-P-060211	400 100 244 <sup>3)</sup>	400 100 232* <sup>1)</sup>
DU	400-P-060241	400 101 239* <sup>1)</sup>	400 101 240* <sup>1)</sup>
EB	400-P-080111	400 100 589 <sup>1)</sup>	400 100 587 <sup>1)</sup>
EC / ECY	400-P-080121	400 101 142 <sup>1)</sup>	400 101 141 <sup>1)</sup>
ER	400-P-080131	400 101 159 <sup>3)</sup>	400 101 160 <sup>3)</sup>
KTU	400-P-080141	400 100 449 <sup>1)</sup>	400 100 477 <sup>1)</sup>

#### Tool shank:

- 1) = Cylindrical (for chuck)
- 2) = No. 2 Morse tape
- 3) = No. 3 Morse tape
- 4) = When ordering, it is imperative to note that two tools (drill and reamer) are necessary.

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Classification: 430.Info. ...