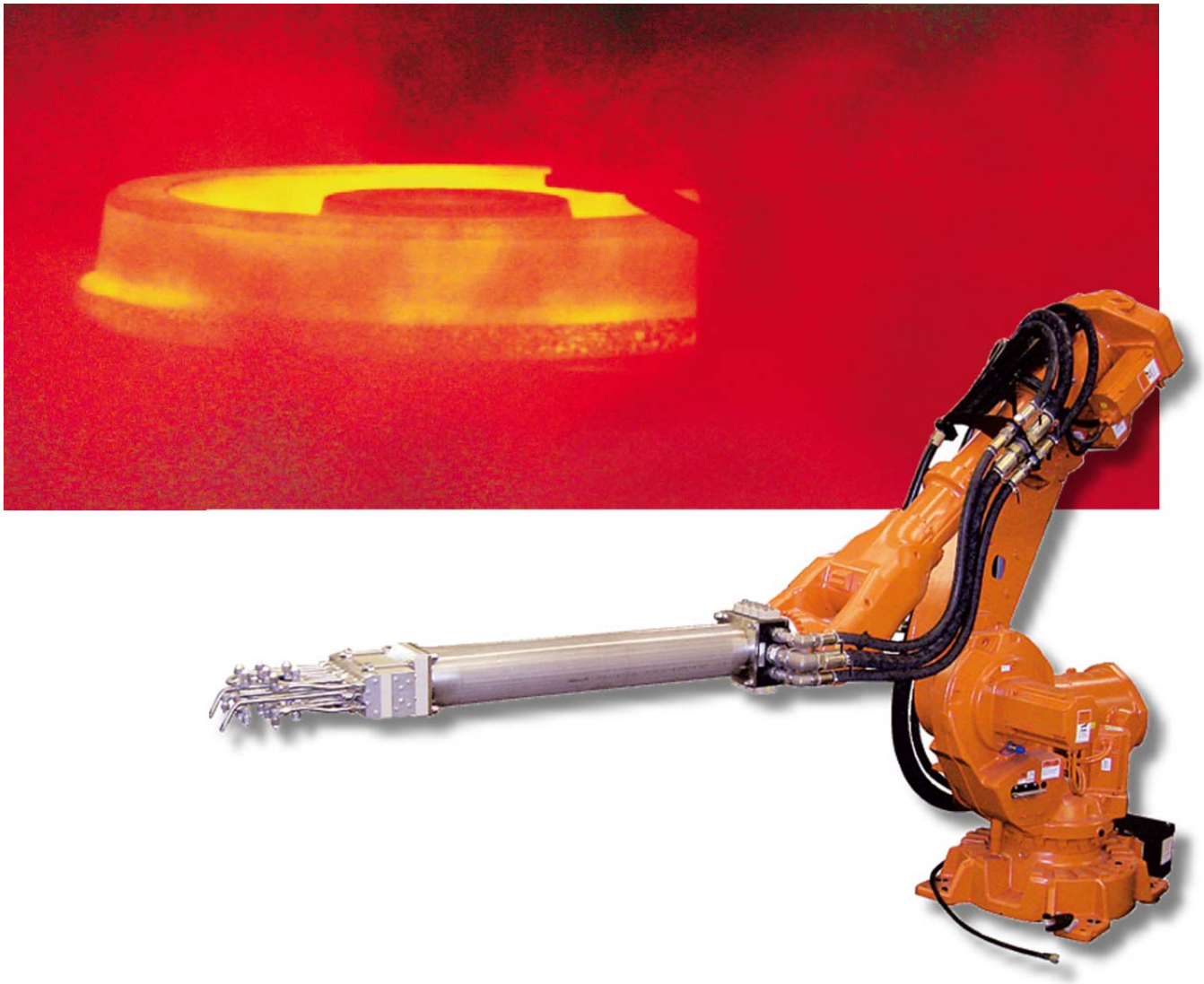
BASIC DATA FOR PROJECT PROPOSALS | FORGING

Version: 1 | Stand: 24.11.2014



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BASIC DATA FOR PROJECT PROPOSALS | FORGING

Date (MM/DD/YYYY):			

1 Customer

Company				
	Street:			
	City:		Zip code:	
	Country:			
Surname:		First name:		
Position:				
E-mail:				
Phone:				
Project name:				
Project content (short, general description):				

2 Type of project

☐ New installations	☐ Retrofit of existing line ➔ See "current process evaluation chart" (page 11 / point 31)

3 Main subject(-s) of the project

☐ Die cooling (spray)	☐ Scale blowing	☐ Lubricant application
☐ Line automation	☐ Process upgrade	☐ Other:

4 Intention of purchase – expected functionality; (Responsibility of supplier)

☐ Function ("spraying")	☐ (Stable) Process

5 Type of press

☐ Hydraulic press	☐ Crank/Eccentric press	☐ Screw press
☐ Hammer	☐ Transfer press	☐ Ring rolling
☐ Extrusion	☐ Upsetting	☐ Other

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Press data		6
Press manufacturer:		
Press size (forging force):	[MN]	
Proposed access area for spraying manipulator (select press window):	Select press window	
Manipulator positioning (select position):	Select position	
Potential interferences for sprayer (e.g. handling robot, die exchange manipulator, conveyors, exhausting equipment, etc. Please list interferences):		
Comments on points above:		

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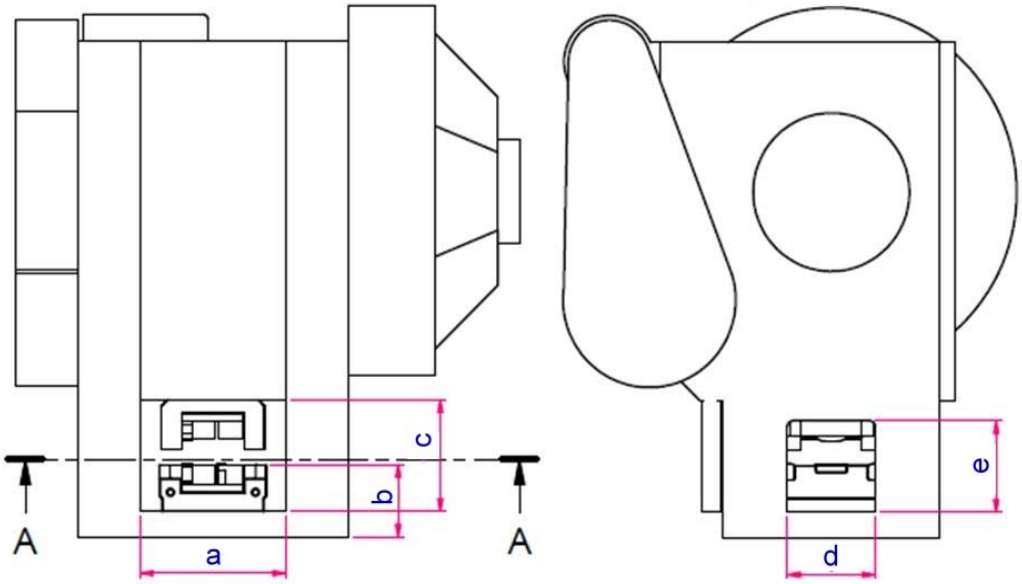
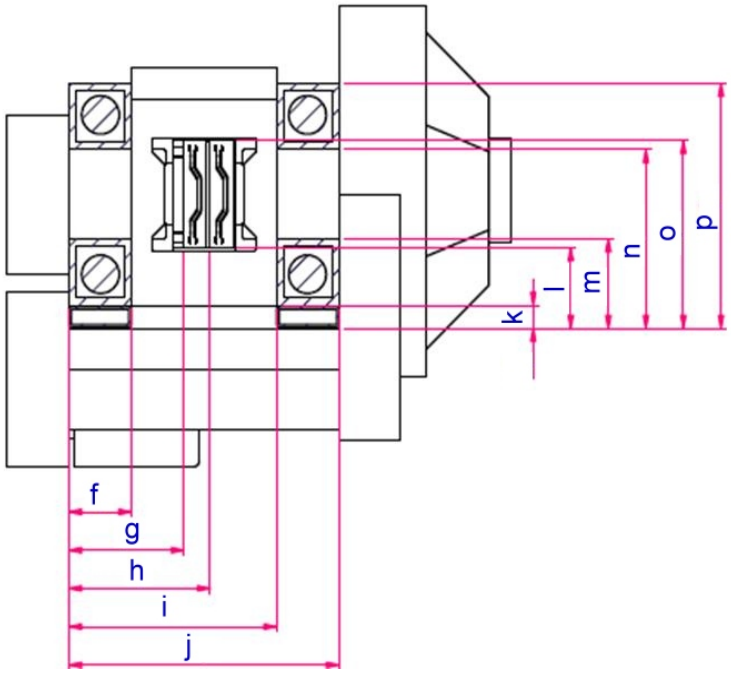
7 Measures of the forging press

Note: Please add drawings of the press and the line layout (especially the environment around the press; Placement and measures of press table etc. should be visible, also free space for spraying system, mixing system and controls. For proper layout of the spraying system we need at least following measures (as marked in the drawings).



A-A (1 : 100)



Measures of forging press	[mm]
a	
b	
c	
d	
e	
f	
g	
h	
i	
j	
k	
l	
m	
n	
o	
p	

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Production parts
Material and products

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☐ Steel	☐ Aluminum	☐ Titanium
☐ Other materials and products (please list materials/products):		

Note: Please add drawings of parts if available. If there are different parts or variants of a part, please list all parts (if applicable add extra document).

Forging process

9

Number of forging steps:	Select number
Description:	

Process data

10

Billet weight:		[kg]	Billet temperature (input):		[°C]
Total cycle time:		[s]	Spraying time (*):		[s]
Pressure contact time (press force applied to billet):		[s]	Total contact time (billet in die):		[s]
Transferred heat energy (from billet to die):		[kJ]	Billet temperature (output):		[°C]

(*) Spraying time = cycle time / relevant time of spraying system

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11 Forging die surface area (active part) → in case of variants, please describe smallest and biggest size (not necessary in case drawings are supplied).

Small	Upper die	Lower die	unit
Die 1			[cm³]
Die 2			[cm³]
Die 3			[cm³]

Big	Upper die	Lower die	unit
Die 1			[cm³]
Die 2			[cm³]
Die 3			[cm³]

Note: Please add other information/data (dwg, stp) as far as available and not mentioned before, e.g.:
- drawings of dies (mounted in press, open dies)
- drawings of parts
- cycle time diagram

12 Lubricant → Please add PDS and MSDS

Manufacturer(s):	
Name/type (list all lubricants, which may be considered for this application):	

13 Basic data of lubricant

(Detailed lube assessment = extra workflow)

Liquid base:	☐ Water based	☐ Oil based		
Type:	☐ Dispersion	☐ Emulsion	☐ Solution	
Pigments:	☐ Graphite	☐ Boron Nitride (CBN)	☐ Other (type):	
Other active ingredients:	☐ Wax	☐ Phosphates	☐ Silicates	
Stability:	Sedimentation rate:	Select sedimentation rate		
	Deposit (consistency):	Select deposit		
	Shear resistance:	Select shear resistance		
☐ Other characteristics (please list lubricant characteristics):				

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Lubricant supply system

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☐ Central supply (by customer)		☐ Individual system	
☐ Manual system		☐ Automatic system	
☐ Single point supply		☐ Multiple point supply	
☐ Fixed dilution ratio		☐ Variable dilution ratio	
☐ Multiple dilution ratio (e.g. for each spraying tool individually)			
☐ Dilution ratio (planned):	Dry residue: [%]	or	mixing ratio (lube : water): :

Water supply (customer site)
Cooling water

15

☐ Tap water low hardness		☐ Tap water medium to high hardness	
☐ Industrial water high purity		☐ Industrial water low purity recycled: ☐ yes ☐ no	
☐ Surface water (river/lake)		☐ De-ionized water	
Water pressure:	[bar]	☐ stable ☐ non stable; ~ variance:	[+/- bar]
Supply volume (installed):		[m^3/h]	

Dilution water (for lubricant)

16

☐ Same as cooling water			
☐ Tap water low hardness		☐ Tap water medium to high hardness	
☐ Industrial water, high purity		☐ Industrial water, low purity recycled: ☐ yes ☐ no	
☐ Surface water (river/lake)		☐ De-ionized water	
Water pressure:	[bar]	☐ stable ☐ non stable; ~ variance:	[+/- bar]
Supply volume (installed):		[m^3/h]	

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17 Air supply (on customer site)

System pressure (air pressure - low/average/high):		[bar]	
Supply volume (supply volume air):		[Nm³/h]	

Air quality according to ISO 8573-1

A: Particle class (please select 0-X)		**B:** Water class (please select 0-X)		**C:** Oil class (please select 0-X)	
Requirement: Class 2		Requirement: Class 4		Requirement: Class 2	

18 Operation mode

☐ Manuel operation	☐ Semiautomatic	☐ Fully automatic
☐ Special requests (please describe):		

19 Reciprocator (customer preference)

☐ Linear	☐ Robot	☐ Transfer beam

20 Robot (make) → Ask for AED robot specifications

☐ ABB	☐ KUKA	☐ FANUC	☐ Other:

21 Reciprocator supplied by

☐ Customer supply	☐ AED	☐ Other:

22 HMI

☐ Buttons/switches	☐ Touch screen	☐ Integrated control (e.g. screen in control room)

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Interface (to press control) 23

☐ Hard wired i/O	☐ Profibus	☐ Parallel	☐ Profinet
☐ Other / special interface (please describe below):			

Power supply 24

☐ 230/400 V	☐ 277/480 V	☐ 220/380 V	☐ 240/415 V
☐ 127/220 V	☐ 110/220 V	☐ Other voltage:	V
☐ 50 Hz	☐ 60 Hz		

Other functions than cooling and lubrication (included in scope of supply) 25

☐ Line safety	☐ Parts handling	☐ Marking
☐ Parts recognition	☐ Conveyor belt (parts transport)	
☐ Other (please describe)		

Note: Please add available information as process data, drawings or other documents, etc.

Service (desired scope of supply) 26

☐ Pre-analyses	☐ Trials	☐ Simulation	☐ Supply equipment
☐ Installation	☐ Cold commissioning	☐ Hot commissioning	
☐ Product support	☐ Equipment training	☐ Application training	
☐ Special requests (please describe):			

Criteria for project fulfillment 27

☐ Function approved	☐ Process approved	☐ Project specifications fulfilled
☐ Reference parts (please list all reference parts):		

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28 **"Voice of customer"**

Please rank the importance of listed points for you. You may add other points as you desire.

not important at all	**1**
some importance (nice to have)	**3**
important, necessary for the process (must have)	**5**
especially valued – this makes the difference	**7**

Characteristics	**Select value**
High lube application precision (defined layer thickness, smooth layer, even surface coverage)	
High cooling performance (using the evaporation enthalpy of water)	
Short spraying time	
High efficient media use (water)	
High efficient media use (lube)	
"Clean" working environment	
Low environmental impact (e.g. low volume of waste water)	
High flexibility (for different parts, small serial numbers)	
Perfect alignment (for "one" part, high serial numbers)	
Improved die life (note: typically contradictory to cycle time)	
Fully automated process, program controlled	
Programmable, intuitive parameter setting	
High level process monitoring (e.g. pressures, volume flow, etc.)	
Turn-key solution	
Value of services (during product life cycle)	
High utilization of the system	
Equipment with automated maintenance functions (e.g. system flushing, nozzle flushing)	
Low maintenance	
Low TCO (total cost of operation)	
Rough and tough (cheap) = **1** / leading edge (high value) = **7**	

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Timeline	29

SOP (line operational / date):	
Start of installations (date):	
Delivery exW (date):	
Incoming order (date):	

Commercial aspects	30

Payment terms:	
Freight (incoterms / select term):	exW
Packaging (select packaging):	Select packaging
Special requirements packaging:	
Warranty (select term):	Select term
Other information (anything else, not mentioned so far):	

Current process evaluation chart → Please fill in when "retrofit" is selected on page 2 / point 2 (Please describe the characteristics of an existing or previous process.)	31

Strengths of your current process (enter major valued strength)	**Weakness of your current process** (enter major valued weakness)

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32 **Critical customer requirements** → Which process outputs are critical for you? (in case of additional data or detailed descriptions, you may only refer to the concerning document in this table)

Process output	**Level of matching expected requirements**	**Current issues**	**Future targets** "must have"	**Future targets** "nice to have"
Cycle time total	(Level)	(Description)	(Description)	(Description)
	Select			
Cycle time cooling	(Level)	(Description)	(Description)	(Description)
	Select			
Cycle time lubrication	(Level)	(Description)	(Description)	(Description)
	Select			
Quality of lube application (coverage, repeatability)	(Level)	(List issues)	(Description)	(Description)
	Select			
Lubricant handling (failure rates, e.g. clogging, dilution quality, lube deterioration, etc.)	(Frequency of occurrence)	(List issues with lube handling)	(Description)	(Description)
	Select			
Parts handling (failure rate, time losses)	(Frequency of occurrence)	(List typical failures, add failure stats)	(Description)	(Description)
	Select			

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Process output	**Level of matching expected requirements**	**Current issues** (please describe)	**Future targets** "must have"	**Future targets** "nice to have"
Ease of operation	(Level)	(List typical failures, add failure stats)	(Description)	(Description)
	Select			
Process integration	(Level)	(List issues with line operation)	(Description)	(Description
	Select			
Other process failures (systematic)	(Frequency of occurrence)	(List systematic failures)	(Description)	(Description)
	Select			
Other process failures (random)	(Frequency of occurrence)	(List random failures)	(Description)	(Description)
	Select			

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Process output	**Level of matching expected requirements**	**Current issues** (please describe)	**Future targets** "must have"	**Future targets** "nice to have"
Unexpected maintenance	(Frequency of occurrence)	(List areas of unexpected maintenance)	(Description)	(Description)
	Select			
Environmental aspects	(Level)	(List issues)	(Description)	(Description)
	Select			
Press operation (forces, metal flow…)	(Level)	(List issues)	(Description)	(Description)
	Select			
Operational flow ("continuous production")	(Level)	(List issues)	(Description)	(Description)
	Select			
Die life (benchmark with industry standard)	(Level)	(List issues)	(Description)	(Description)
	Select			
Working environment	(Level)	(List issues)	(Description)	(Description)
	Select			

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Your note

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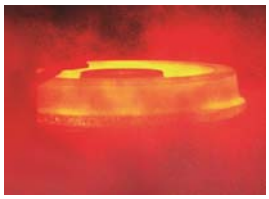

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