

HASCO®

Enabling with System.

Specifications for injection moulds

2.0



Specifications for injection moulds

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Specifications for injection moulds

Introduction

This specification is intended as a set of rules to govern the procurement, design and construction of injection moulds.

The consistent use of **original HASCO standard components** (plates, accessories and hot runner technology) makes it possible to meet the requirements placed on the injection mould in terms of quality, innovation, guarantee, delivery time and cost-efficiency.

Original HASCO standard mould units meet the requirements of your certified management system to [DIN EN ISO 9001:2015](#) or ISO/TS 16949. e.g. through unambiguous product labelling for continuous traceability. 

This specification ensures the greatest possible degree of standardisation in order to secure precision and quality in mould manufacture.

In order to respond to the constantly growing requirements and the implementation of new technologies and findings in mould construction, this specification will be a „living“ set of rules.

Since injection moulds are generally customised, one-off products, it is not possible to include all eventualities in a set of rules.

We would ask that any agreements concluded that differ from this specification be documented.

This specification does not relieve the manufacturers of injection moulds of their responsibility.

HASCO®

Enabling with System.

www.hasco.com
*round the clock and
all over the globe.*

All the products, innovations and services
are available 24/7 globally in the new
HASCO portal.



Article designation:	Ordering party:
Article number:	Compiled by:
Drawing No.:	Date:
Mould supplier:	Location of supplier:

Specifications for injection moulds **Information sheet / Design specifications**

General mould information

K Standard structure

KR / PR Insert modular system

K 2500 – Split-mould kit (ejector version)

K 2501 - Split mould kit (stripper version)

K 3500 - Mould changing system

K 3600 - Small series mould

K 5000 - Babyplast

3-plate mould

Unscrewable mould Gear components Collapsible core

Multi-component mould

Transfer technology	Rotary table
Core back	Rot. index plate
Other:	Stack mould using components Z1545 / Z1547

Component/production information

Planned number per year:	pcs.	
Guaranteed output:	pcs.	
Material shrinkage:	%	
Material	Weight per part	Weight per shot
1	g	g
2	g	g
3	g	g

Loader:	Yes	No	
Pre-heated:	Yes	°C	No
	Insert	Outsert	
Number / designation:			

Number of cavities:	cavities
Mould dimensions:	x
Mould installation height:	mm
Fully automatic running	
Semi-automatic running	

IM machine / Data sheet / Hole pattern

Type:	
Clamping force:	KN Removal
Calc. cycle time:	Sec Free-falling
Min. installation height:	

Article designation:

Ordering party:

Article number:

Compiled by:

Drawing No.:

Date:

Specifications for injection moulds

Information sheet / Design specifications

Hot runner

Gate and feed system design

Cold runner	Three-plate mould	
Combination of hot runner and cold runner		
Hot runner:	open system	
	Valve gate nozzle	
	pneumatic	
	hydraulic	
	electric	
Gating:	direct	indirect
Number of nozzles:		
Colour/material change:	yes	no
Multi-component applications:	2 component	3 component
Hybrid part, e.g. metal insert:	yes	no

Supplier: HASCO

Plug assignment: HASCO

Plug insert:
(e.g. HASCO H12290/...)

Connection housing:
(z.B. HASCO H12270/...)

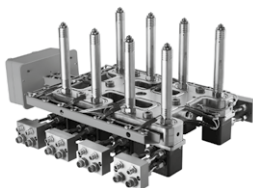
HASCO hot runner - enquiry:

Information for the design of hot runner moulds:

Single nozzle, R =



Hot runner system


Ready-to-install system
(wired+piped)


Hot half



Only for cold runners:

Sprue:	Ø	mm	Angle:	°
Runner 1:	Ø	mm		
Runner 2:	Ø	mm		
Runner 3:	Ø	mm		
Runner gate:				
Number of runner gates per part				pcs.
Gate diameter				mm

Other:

Article designation:

Ordering party:

Article number:

Compiled by:

Drawing No.:

Date:

 Specifications for injection moulds**Information sheet / Design specifications****Demoulding**

Round ejector	Flat ejector
Sleeve ejector	Contour ejector
Back-pressure ejector	Stripper plate
Other:	DLC coating

Ejector plate guide	Ball cage
Self-lubricating	Steel
Other:	DLC

Slide	Sub-runner
Angled ejector	Collapsible core
Forced demoulding	Threaded spindle
Mechanical	Hydraulic
Other:	

Slide bars	Self-lubricating
Side	Base
Other:	

Article designation:

Ordering party:

Article number:

Compiled by:

Drawing No.:

Date:

Specifications for injection moulds Information sheet / Design specifications

Mould unit / Material

	1.1730	1.2767	1.2083	1.2085	1.2311	1.2312	Toolox 33	1.2714HH	Toolox 44	1.2343	1.2343 ESR	n.a.
Clamping plate NS:	→											
Backup plate NS:	→											
Cavity plate NS:	→											
Cavity plate ES:	→											
Backup plate ES:	→											
Risers:	→											
Ejector retainer plate:	→											
Ejector base plate:	→											
Clamping plate ES:	→											
Mould inserts:	→											
Slides:	→											
Cores:	→											
Other:	→											

The high-performance Mould Base Assistant with a layout editor is available in the HASCO Portal for you to configure further details of your mould.



Further configuration details

Insulating sheet:	NS	ES		
Centring ring:	NS	ES	Ø	mm
Nozzle radius:		R		mm
Rapid clamping system:				
Pressure transducer:	direct	indirect		

Cavity / Surface

Erosion structure:	NS	ES
Line polishing:	NS	ES
High-gloss polishing:	NS	ES
Grain:	NS	ES
Coating:	NS	ES
Layer type/thickness:		

Article designation:

Ordering party:

Article number:

Compiled by:

Drawing No.:

Date:

*Specifications for injection moulds***Information sheet / Design specifications****Mould temperature control**

Temperature control	Yes	No
Cooling medium		
Cooling channel	Ø	mm
Coated	Yes	No
Slides cooled	Yes	No
Cores cooled	Yes	No
Temperature sensor	Yes	No
Recess for connecting nipple	Ø	x mm
Thread connecting nipple	M	R mm
Connectors:	Operating side	or opposite
	Top	Bottom

Marking and documentation

2D assembly drawing for mould

2D individual component drawings for mould

3D data mould

Mould nameplate A 6500 Mehr

original acceptance test certificates 3.1 to DIN EN 10204

mould plates inserts

Data output:

Parts list

Temperature control schedule

Other:

Miscellaneous

Moldflow analysis conducted: Yes No

Analysis integrated in part/mould: Yes No

Other:

Enclosures

Signature ordering party

Signature supplier

Article designation:

Ordering party:

Article number:

Compiled by:

Drawing No.:

Date:

*Specifications for injection moulds***Quick-Check Mould design****Yes No Clarify**

01 3D data will read in completely and error-free

02 2D data will read in completely and error-free

03 Full documentation available

04 Part checked for mould inclines and tolerances

05 Number of cavities poss. mirror-inverted OK

06 Material and shrinkage OK

07 Mould dimensions fit planned machine

08 Mounting dimensions and height observed

09 Brackets can be applied to the mould

10 Rapid clamping system considered

11 Locating rings fit planned machine

12 Lifting device available

13 Threads for lifting eye bolts available in the plates

14 Thermal insulating sheets available

15 Sprue bushing diameter matches machine nozzle

16 Dimension, design runner and gate OK

17 Ejector displacement sufficient

18 Number and size of ejectors sufficient

19 Ejector assembly guide available

20 Ejector rods and threads match the machine

Article designation:

Ordering party:

Article number:

Compiled by:

Drawing No.:

Date:

*Specifications for injection moulds***Quick-Check Mould design****Yes No Clarify**

- | | Yes | No | Clarify |
|--|-----|----|---------|
| 21 Limit switch available for ejector package | | | |
| 22 Other limit switches, proximity switches available | | | |
| 23 Temperature control system adequately designed | | | |
| 24 Slides cooled | | | |
| 25 Cores cooled | | | |
| 26 Connector nipple and possibly countersinking OK | | | |
| 27 Thermocouple / cavity pressure sensor available | | | |
| 28 Support pillars / wide risers available to prevent deflection | | | |
| 29 Mould plates/mould inserts sufficiently dimensioned | | | |
| 30 Material selection for plates and inserts checked | | | |
| 31 Mould centring sufficient | | | |
| 32 First of all, guide bushes Z00 as the main guide in the engagement zone | | | |
| 33 Marking, identification, date stamp included | | | |

Article designation:	Ordering party:
Article number:	Compiled by:
Drawing No.:	Date:



Specifications for injection moulds Quick-Check Mould

	Yes	No	Clarify
01 Lifting device available and marked			
02 Threads for lifting eye bolts are available in plates			
03 Can mould halves be clamped on and off individually			
04 Tightness checked: water, oil, air			
05 Sealing plugs inserted as per specification			
06 Cavity surface produced as specified			
07 Ribs and recesses draw-polished			
08 Sufficient venting next to parting plane			
09 Venting available at cores			
10 Venting available at slides			
11 Ejector assembly smooth-running			
12 Limit switch for ejector assembly functions OK			
13 Back-pressure pins as per specifications			
14 Slide movement and displacement OK			
15 Slide ratchets into spring plunger OK			
16 Marking on temperature control system (e.g. I1/O1)			
17 Hot runner type plate mounted			
18 Mould identification and name plate mounted			
19 Circuit-plan plate (water, oil, air) mounted			
20 Mould safety device (NS vs. ES)			
21 USB stick (Mould Memory)			
22 original acceptance test certificate 3.1 to DIN EN 10204			

Article designation:

Ordering party:

Article number:

Compiled by:

Drawing No.:

Date:

*Specifications for injection moulds***Quick-Check Initial sampling**

Yes No Clarify

- 01 Volumes, projected area of part available
- 02 Assembly drawing of mould available
- 03 Mould can be clamped on planned machine
- 04 Article is filled uniformly without any problems
- 05 Holding pressure phase correct for the part
- 06 Demoulding from slides runs smoothly
- 07 Demoulding from NS side runs smoothly
- 08 Demoulding from ES side runs smoothly
- 09 Ejector markings are not noticeable
- 10 Parting lines are not noticeable on the part
- 11 The surface texture of the parts is OK
- 12 No entrapped air visible in the part
- 13 No sink marks visible on the part
- 14 No draw points evident on the part
- 15 Date insert set to current month
- 16 Date insert set to correct year
- 17 All moving parts of the mould OK
- 18 General visual appearance of the mould OK
- 19 Specified quality of gate OK
- 20 Electric wiring vs. control technology OK
- 21 Log: 1st heating of mould after final assembly
- 22 Connected up ready for operation

Ordering party:

Compiled by:

Date:



Specifications for injection moulds

Timeline / Project schedule

	January				February				March				April				May				June				July				August				September				October				November				December								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
1	Article design																																																				
2	Mould design																																																				
3	CAM programming																																																				
4	Order mould unit																																																				
5	Order standard components																																																				
6	Order hot runner																																																				
7	Electrodes																																																				
8	Mill mould unit																																																				
9	Mill inserts NS																																																				
10	Mill inserts ES																																																				
11	Mill slides																																																				
12	Mill other																																																				
13	Cooling																																																				
14	Turn																																																				
16	Heat treatment																																																				
17	Grind																																																				
18	Sink erosion / wiring																																																				
19	Assembly / Other																																																				
20	Inking																																																				
21	Sampling																																																				
22	Other																																																				

Next timeline on:

Signature ordering party

Signature supplier

Article designation:	Ordering party:
Article number:	Compiled by:
Drawing No.:	Date:

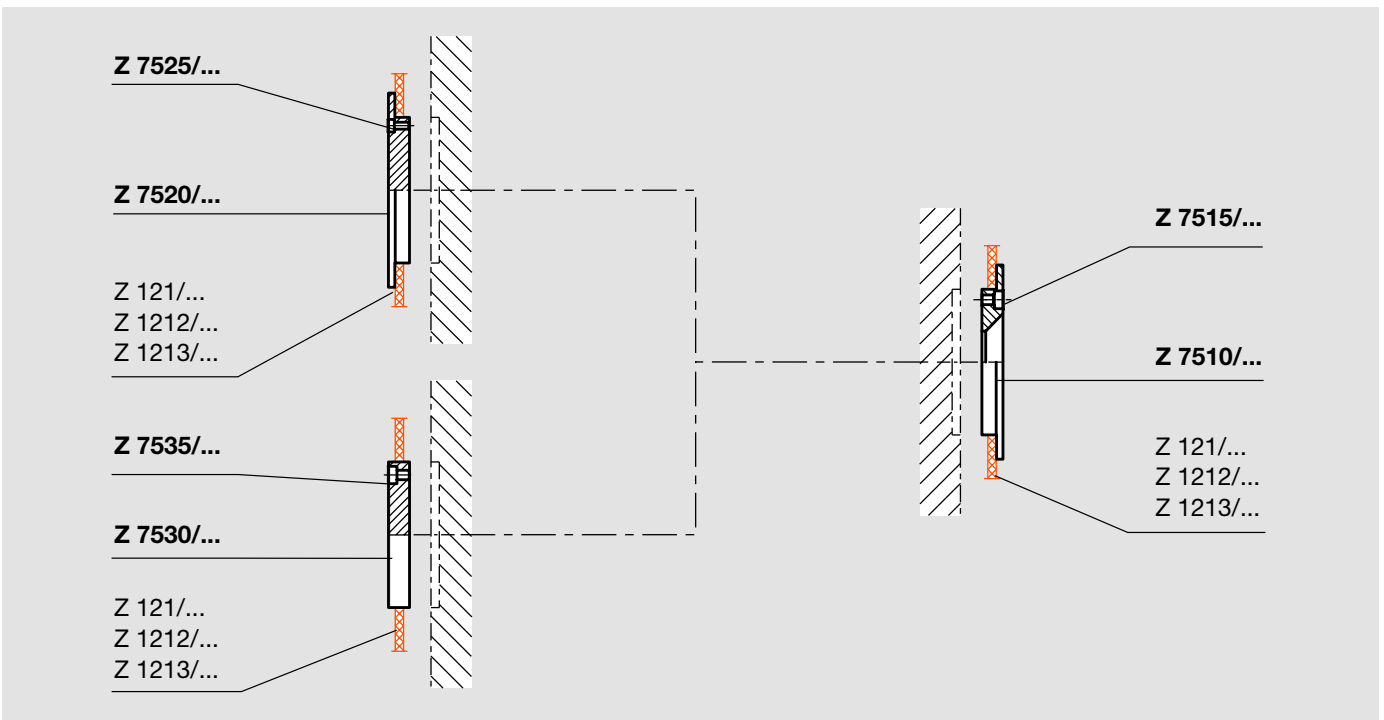
Specifications for injection moulds
Standard mould unit

Werkzeug - Auswerferseite

Mould - ejector side

Mould - nozzle side

Fixed mould half



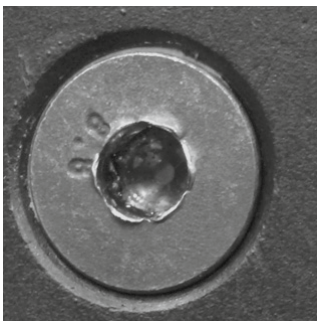
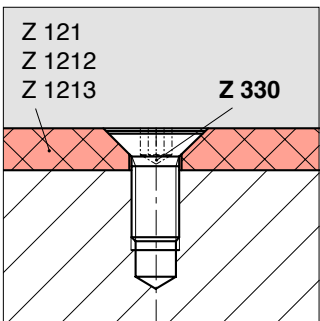
Z7520	Z7525	Z7530	Z7535
d1	mm	h1	mm
Z1212	Z1213	Z121	

Other:

Z7510		Z7515		Z7540			
d1		mm		h1		mm	
Z1212		Z1213		Z121			

Other:

The thermal insulating sheets should be fastened with countersunk screws Z330 / ... with Torx®.



Hexagon socket damaged



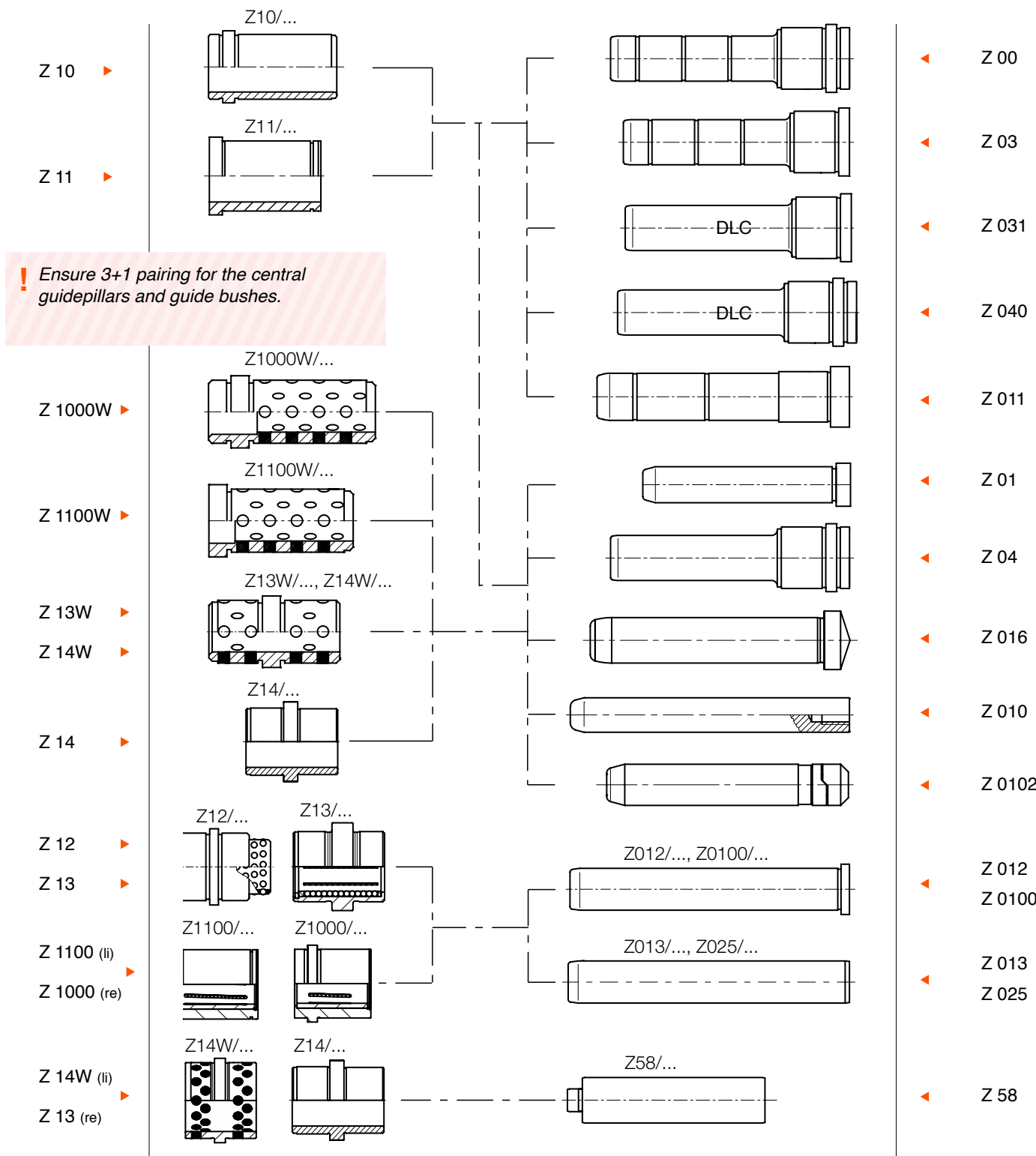
No damage with Torx®

Article designation:	Ordering party:
Article number:	Compiled by:
Drawing No.:	Date:

Z1

Specifications for injection moulds

Guide elements



Article designation:

Ordering party:

Article number:

Compiled by:

Drawing No.:

Date:

Z1 Specifications for injection moulds

Guide elements



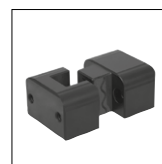
Z 051
Locating unit, conical



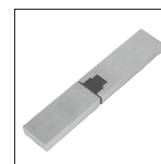
Z 071/1
Square guide bar



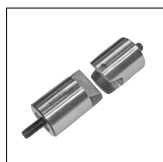
Z 080
Prelocating unit



Z 085/2
Flat locating unit
DLC coated



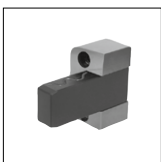
Z 09/3
Locating unit
without holes



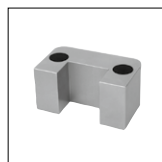
Z 061
Locating unit, flat



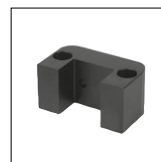
Z 07
Square guide bar



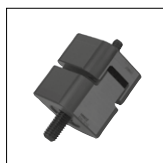
Z 071/2
Square guide bar, DLC



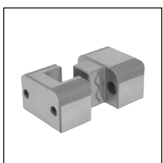
Z 072/1
Guide retainer



Z 072/2
Guide retainer, DLC



Z 082
Prelocating unit
DLC coated



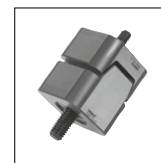
Z 085/1
Flat locating unit



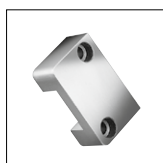
Z 09/1
Locating unit



Z 09/4
Locating unit,
without holes



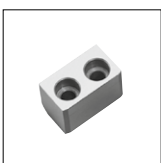
Z 060
Locking unit,
trapezoid



Z 17
Guide retainer



Z 18
Guide block



Z 19
Guide jaw



Z 09/2
Locating unit
DLC coated



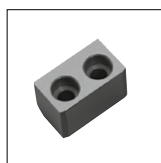
Z 14
Guide bush,
self-lubricating



Z 0122
Ball guiding unit,
with collar



Z 0132
Ball guiding unit,
without collar



Z 190
Guide jaw, DLC



Z 0223W
Ejector assembly
guide unit



Z 0717
Rectangular guide
unit



Z 01003
Linear ball bearing unit



Z 1819
Flat guide unit

Article designation:

Ordering party:

Article number:

Compiled by:

Drawing No.:

Date:

Z2

Specifications for injection moulds

General mould components



Z 4800
Marking unit, square



Z 483
Year date insert



Z 48759
Year/quarter
marking insert



Z 48712
Day marking insert



Z 48720
Year/week marking
insert



Z 4801
Interchangeable insert,
square



Z 48707
Year/week
marking insert



Z 48760
Year/quarter
marking insert



Z 48714
Weekday
marking insert



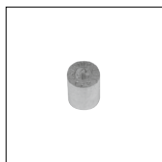
Z 48722
Week marking insert



Z 4810
Marking unit
round



Z 48710
Year marking insert



Z 48715
Year/month
marking insert



Z 48755
Shift marking insert



Z 48723
Day making insert



Z 4811
Interchangeable insert,
round



Z 48711
Week marking insert



Z 485
Date insert



Z 48756
A - M marking insert



Z 48725
Weekday
marking insert



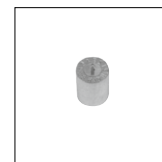
Z 48
Date insert



Z 48757
N - Z marking insert



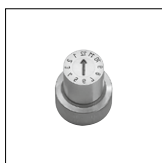
Z 48700
Year/month marking
insert



Z 48717
Month marking insert



Z 48730
Shift marking insert



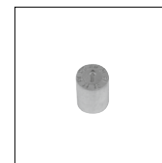
Z 482
Month date insert



Z 48758
0 - 9 marking insert



Z 48705
Month marking insert



Z 48718
Year marking insert



Z 48731
A - M marking insert

Article designation:

Ordering party:

Article number:

Compiled by:

Drawing No.:

Date:

Z2
Specifications for injection moulds

General mould components



Z 48732
N - Z marking insert



Z 715
Load ring



Z 48733
0 - 9 marking insert



Z 725
Lifting eye bolt



Z 48734
Year/quarter
marking insert



Z 4870
Marking stamp,
blanc with arrow insert



Z 555
Adjustment plate,
round



Z 48701
Arrow insert,
Year



Z 556
Adjustment plate,
rectangular

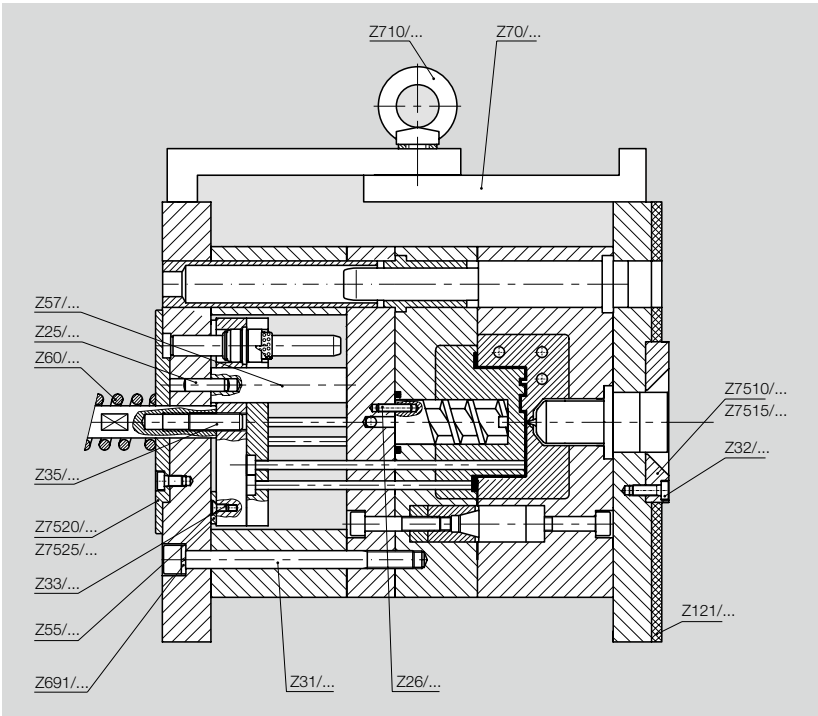


Z 557
Adjustment plate, rectangular
with lubrication grooves

Article designation: _____
Article number: _____
Drawing No.: _____

Ordering party: _____
Compiled by: _____
Date: _____

Z2 *Specifications for injection moulds*
General mould components



For hanging the injection mould in the machine, it is essential to have an adequately dimensioned lifting device and lifting eye bolts. It should be possible to assemble and dismantle the mould halves independently of each other.



Z 70
Lifting device



Z 710
Lifting eye bolt



Z 711
Lifting eye bolt,
high strength



Z 7120
Eye nut



Z 721
Safety eye screw



Z 73
Mould safety device

Article designation:

Ordering party:

Article number:

Compiled by:

Drawing No.:

Date:

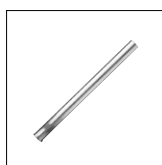
Z3

Specifications for injection moulds

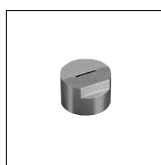
Ejection



Z 40
Ejector pin
cylindrical head



Z 43
Ejector pin
conical head



Z 462
Guide



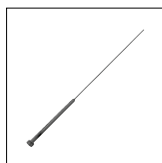
Z 451
Ejector sleeve



Z 455/S
Ejector sleeve, shouldered,
special design



Z 400
Ejector pin
with DLC coating



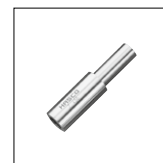
Z 44
Ejector pin, cylindrical
head, shouldered



Z 465
Flat ejector



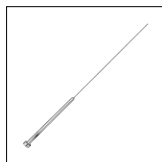
Z 452S
Ejector sleeve,
special design



Z 456
Wear sleeve



Z 41
Ejector pin
cylindrical head



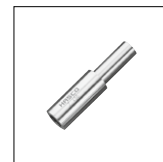
Z 441
Ejector pin, cylindrical
head, shouldered



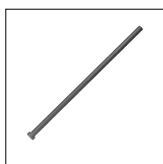
Z 4650
Flat ejector
with corner radius



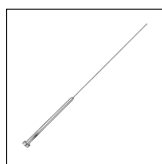
Z 453/S
Ejector sleeve,
special design



Z 456/S
Wear sleeve,
special design



Z 412
Ejector pin
plasma nitrided



Z 442/S
Ejector pin, cylindrical
head, shouldered



Z 4651
Flat ejector
with 2 corner radii



Z 454/S
Ejector sleeve, shouldered,
special design



Z 457
Ejector sleeve
with DLC coating



Z 413
Ejector pin
stainless steel



Z 46
Flat ejector



Z 466/S
Flat ejector,
special design

Z40 and Z41 can
now be individually
configured via
our Ejector
Configurator:

Access is available
to registered users.



Article designation:

Ordering party:

Article number:

Compiled by:

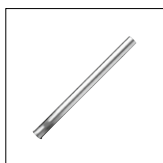
Drawing No.:

Date:

Z3

Specifications for injection moulds

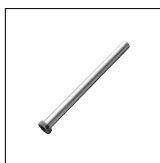
Ejection



Z 42
Ejector pin,
conical head



Z 461
Special flat ejector



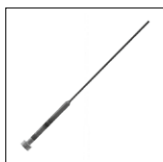
Z 45
Ejector sleeve



Z 443
Ejector pin shouldered,
cylindrical head,
DLC coated



Z 410
Ejector pin,
anti-twist head



Z 443
Ejector pin, DLC,
shouldered, hardened



Z 4655
Flat ejector pin,
with four corner radii



Z 4656
Flat ejector pin,
with two corner radii

Article designation:

Ordering party:

Article number:

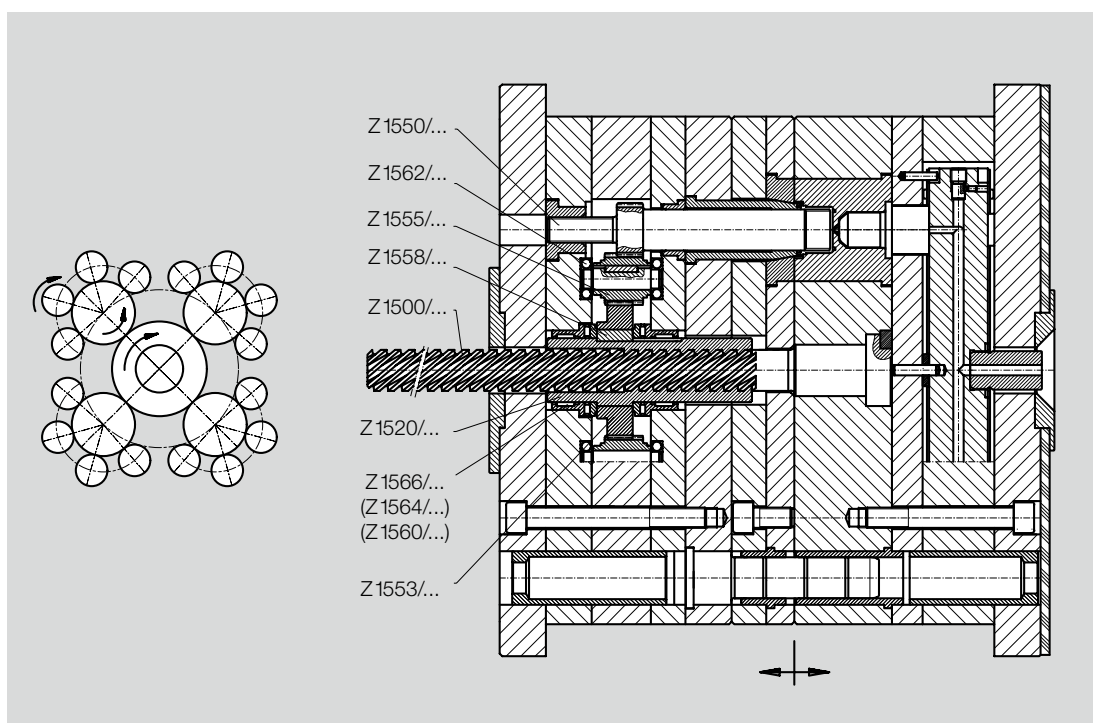
Compiled by:

Drawing No.:

Date:

Z4 Specifications for injection moulds Demoulding

Thread Boring



Z 1545
Gear housing



Z 1547
Gear rack unit



Z 1500
Helical spindle



Z 1550
Threaded core



Z 1555
Intermediate
gear wheel



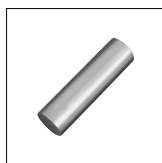
Z 1564
Needle-thrust ball
bearing



Z 1557
Transmission shaft



Z 1520
Helical nut



Z 1552
Pilot thread bushing
blank



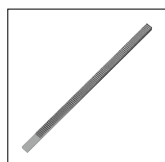
Z 1560
Taper roller
bearing



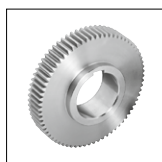
Z 1565
Thrust ring



Z 1561
Cylindrical roller
bearing



Z 1540
Rack



Z 1553
Gear wheel



Z 1562
Grooved ball
bearing



Z 1566
Needle-thrust
roller bearing



Z 1567
Needle bearing

Article designation:

Ordering party:

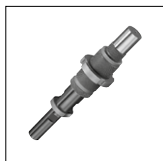
Article number:

Compiled by:

Drawing No.:

Date:

Z4 Specifications for injection moulds Demoulding



Z 169
Two-stage ejector
central mounting



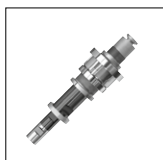
Z 1698
Two-stage ejector



Z 178
Round latch
locking unit



Z 1790
Round latch
locking unit



Z 1691
Two-stage ejector,
central mounting



Z 170 / Z 171
Latch locking unit



Z 160
Threadbush,
for ejector assembly



Z 1791
Pulling rod



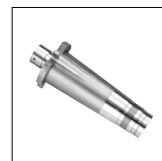
Z 1692
Two-stage ejector,
advancing



Z 172
Frictional puller



Z 161
Threadbolt, for
ejector assembly



Z 3600/S
Collapsible core



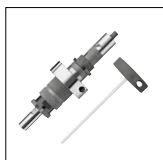
Z 1692/S
Two-stage ejector, ad-
vancing, special design



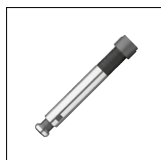
Z 173
Round latch locking
unit



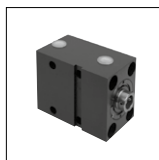
Z 2301
Locking cylinder



Z 1695
Two-stage ejector,
central mounting



Z 1731
Pulling rod



Z 2350
Clamping cylinder,
double-acting



Z 1697
Two-stage ejector,
off-centre



Z 174
Latch locking unit



Z 236
Short-stroke cylinder,
double-acting

Article designation:

Ordering party:

Article number:

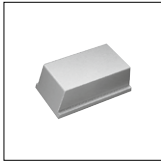
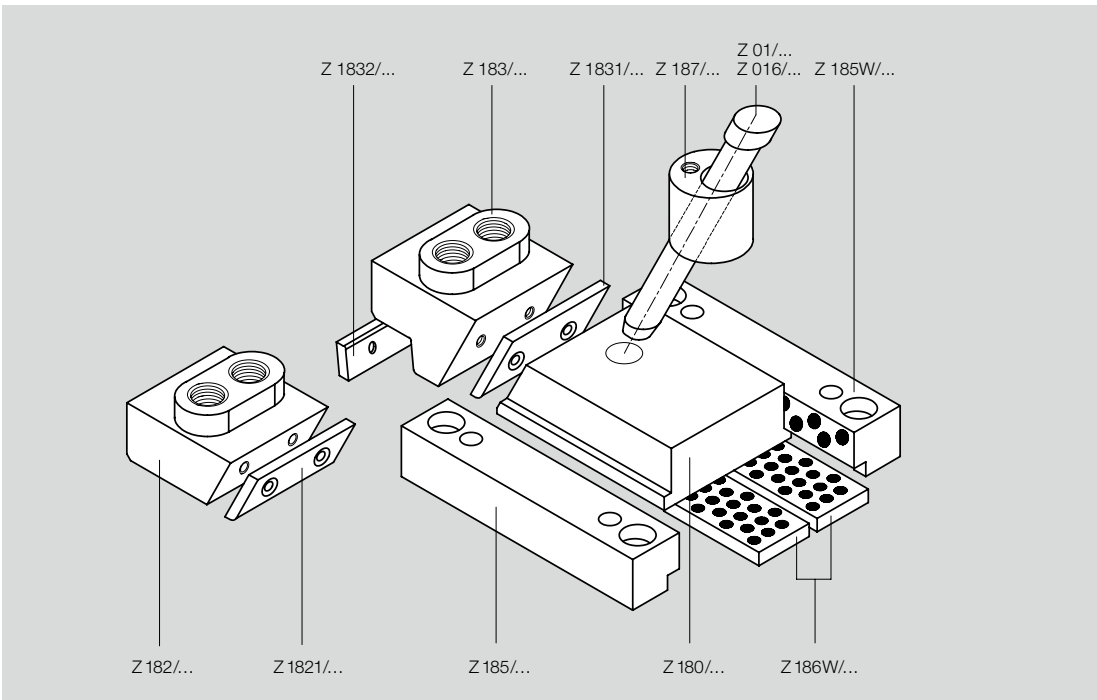
Compiled by:

Drawing No.:

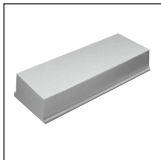
Date:

Z4 Specifications for injection moulds
Demoulding

Slide elements



Z 180
Slide



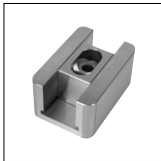
Z 1800
Slide, can be cut as required



Z 181
Mould slide unit



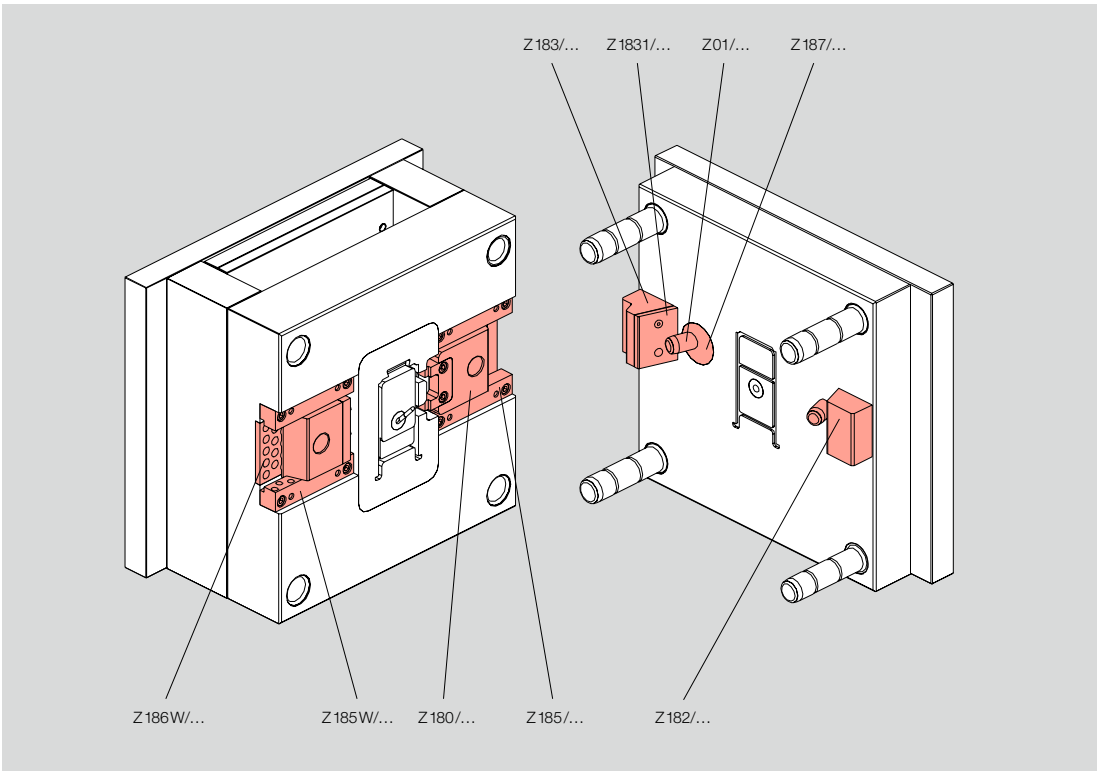
Z 1810
Locking heel



Z 1811
Inclined sliding carriage



Z 18110
Inclined sliding carriage



Article designation:

Ordering party:

Article number:

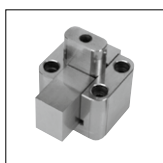
Compiled by:

Drawing No.:

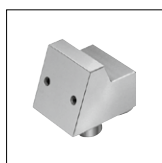
Date:

Z4 Specifications for injection moulds Demoulding

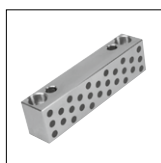
Slide elements



Z 1812
Slide unit



Z 183
Locking heel,
double sided



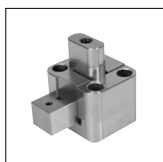
Z 1850 W
Guide strip,
selflubricating



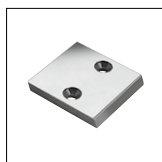
Z 1870
Retainer, square



Z 01
Guide pin (angle pin)



Z 1813
Slide unit



Z 1831
Wear plate



Z 1851
Guide strip



Z 1880
Slide modular
system



Z 010
Angle pin



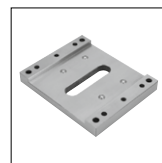
Z 182
Locking heel,
single-sided



Z 1840
Locking heel,
with retainer



Z 1852
Guide strip



Z 1881
Base plate



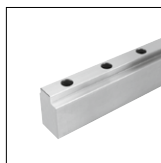
Z 016
Angled pillar
18° tapered



Z 1820
Locking heel,
single-sided



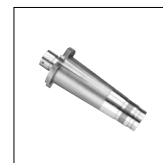
Z 185
Guide strip



Z 1853
Guide strip,
to cut as required



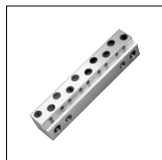
Z 1801
Slide



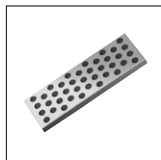
Z 3600/S
Collapsible core,
special production



Z 1821
Wear plate



Z 185 W
Guide strip,
selflubricating



Z 186 W
Guide strip,
selflubricating



Z 1802
Slide for contour



Z 1832
Wear plate



Z 1850
Guide strip



Z 187
Retainer



Z 1897
SmartLock

Article designation:

Ordering party:

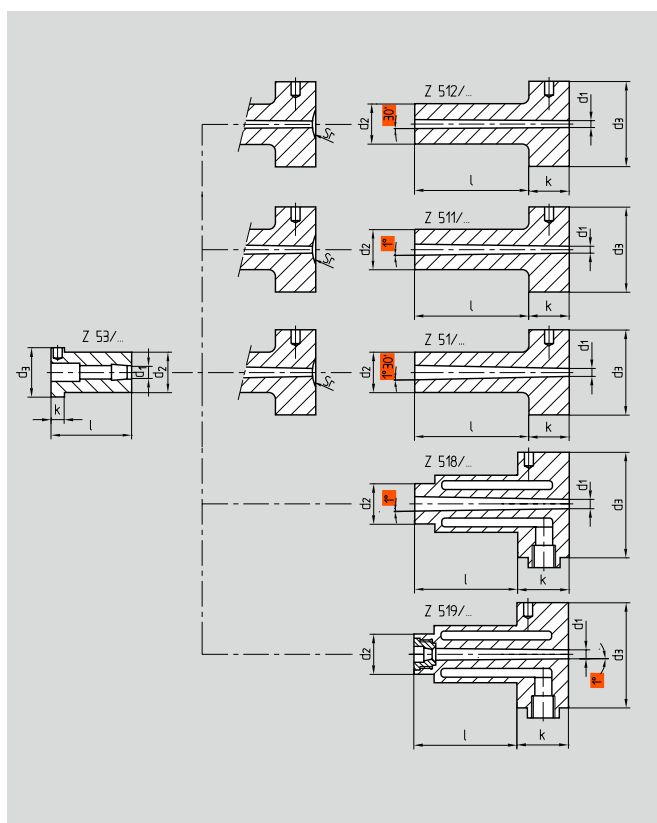
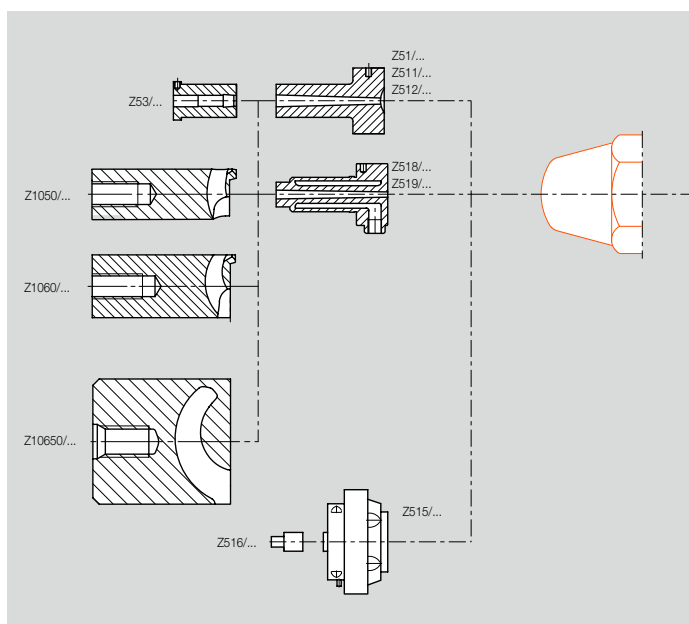
Article number:

Compiled by:

Drawing No.:

Date:

Z5 Specifications for injection moulds Gating



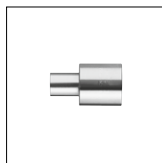
Z 50
Sprue bushing blank



Z 515
Pneumatic nozzle



Z 51
Sprue bushing



Z 516
Nozzle insert



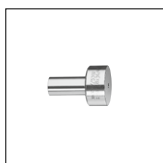
Z 53
Sprue puller insert



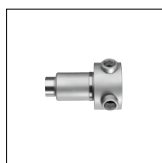
Z 10650
Gate insert, square
controllable



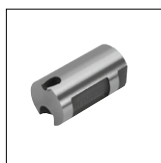
H 5050
Gap filter



Z 511
Sprue bushing



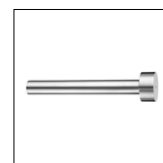
Z 518
Sprue bushing,
integrated cooling



Z 1050
Gate insert, round
with rounded tunnel



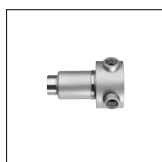
Z 109
Filter insert



H 510
Sprue bushing,
blank



Z 512
Sprue bushing



Z 519
Thermoset sprue
bushing



Z 1060
Gate insert, square
with rounded tunnel



Z 1095
Filter insert



H 530
Sprue puller insert,
blank

Article designation:

Ordering party:

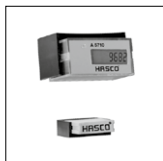
Article number:

Compiled by:

Drawing No.:

Date:

Z7 Specifications for injection moulds **Measuring technology**



A 5710
Cycle counter



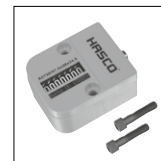
A 5712
Cycle counter



A 5714
Combined cycle counter



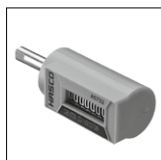
A 5716
Universal counter



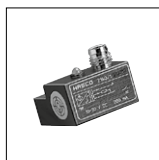
A 5730
Cycle counter, mechanical



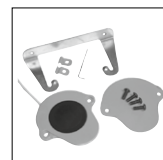
A 5731
cycle counter, mechanical, right



A 5732
Cycle counter, mechanical, left



Z 140
Limit switch, proximity



Z 1420
Limit switch, mechanical



Z 1471
Proximity switch, Inductive, threaded



Z 1473
Proximity switch, inductive, round



Z 1475
Proximity switch, Inductive, square

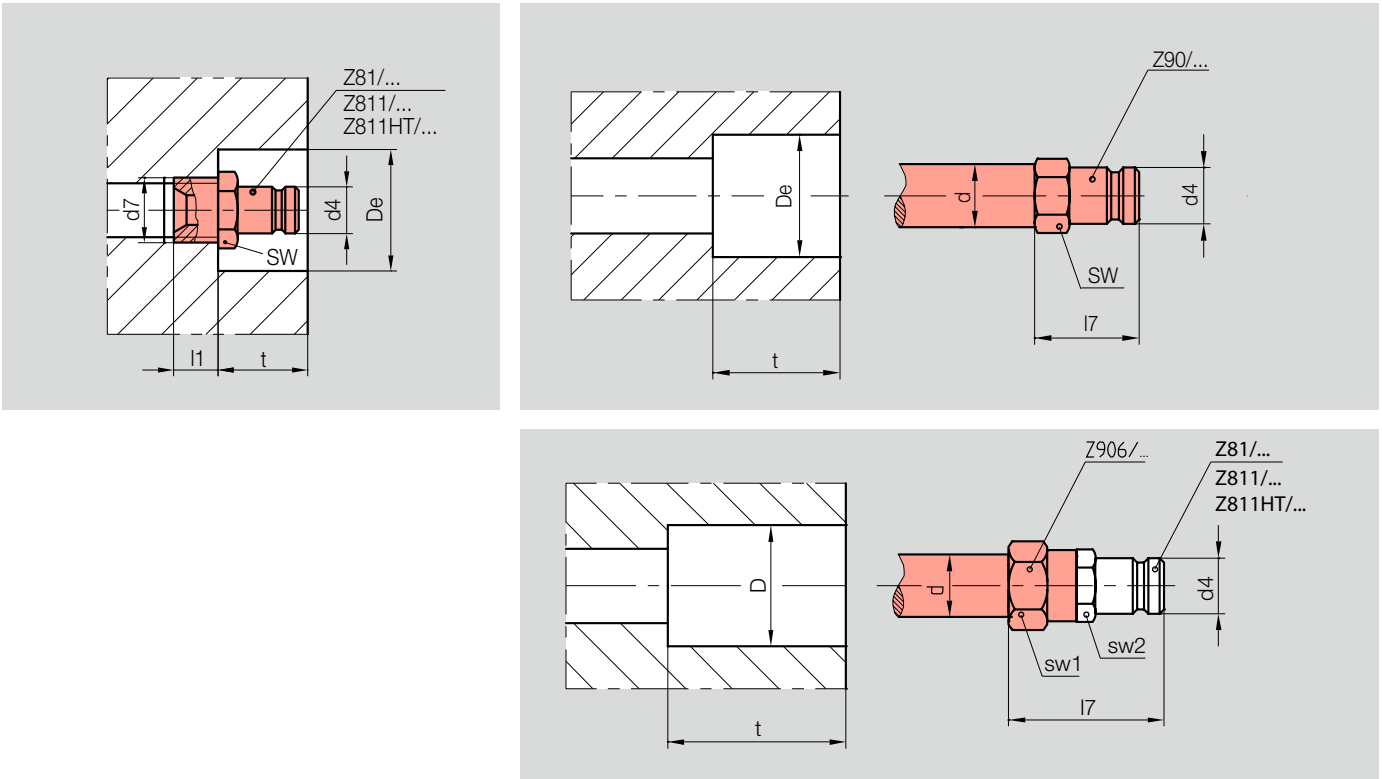


Z 1477
Inductive proximity switch

Article designation:	Ordering party:
Article number:	Compiled by:
Drawing No.:	Date:

Z8 Specifications for injection moulds
Temperature control system

The following thread, bore and counterbore diameters and counterbore depths must be observed:



Medium							
Temperature							
Pressure							
With valve	Yes		No				
Connecting nipple	d7 Thread		l1	mm	De	mm	t mm
Extension nipple					De	mm	t mm
Other					D	mm	t mm
Other					D	mm	t mm
Sealing plug	Thread		l	mm			
Other	Thread		l	mm			
Other	Thread		l	mm			

Article designation:

Ordering party:

Article number:

Compiled by:

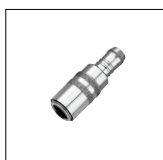
Drawing No.:

Date:

Z8

Specifications for injection moulds

Temperature control system



Z 80
Shut-off coupling
with valve



Z 802
Adapter coupling
with valve



Z 807
Shut-off coupling
with valve



Z 809
Multiple shut-off
coupling with valve



Z 814
Reducing nipple



Z 80HT
Shut-off coupling
with valve



Z 8021
Adapter coupling
open flow



Z 807HT
Shut-off coupling
with valve



Z 81
Nipple open flow



Z 815
Adapter



Z 80PL
Shut-off coupling
with valve



Z 803
Adapter coupling
with valve



Z 80700
Safety coupling



Z 810
Nipple open flow



Z 817
Hose nipple



Z 801
Rapid coupling
open flow



Z 804
Adapter coupling
open flow



Z 80700HT
Safety coupling



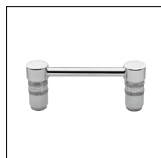
Z 811
Shut-off nipple
with valve



Z 819
Multiple shut-off
nipple with valve



Z 801HT
Rapid coupling
open flow



Z 805
Diverting coupling
unit with valve



Z 808
Rapid coupling
open flow



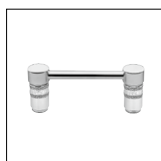
Z 811HT
Shut-off nipple
with valve



Z 82
Shut-off coupling
with valve



Z 801PL
Rapid coupling
open flow



Z 8051
Diverting coupling
unit open flow



Z 808HT
Rapid coupling
open flow



Z 812
Double-sided
connector



Z 825
Dummy coupling

Article designation:

Ordering party:

Article number:

Compiled by:

Drawing No.:

Date:

Z8

Specifications for injection moulds

Temperature control system



Z 83
Plug-in connector



Z 875
Hose nipple



Z 880
Connector



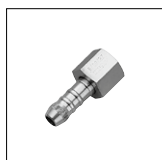
Z 905
Adapter



Z 9400
Hexagon socket pipe plug, cylindrical with sealing compound



Z 830
Adapter, open flow



Z 876
Hose nipple



Z 880PL
Double hose nipple, Push-Lok



Z 906
Locking nipple extension



Z 941
Sealing plug headed



Z 831
Plug-in connector



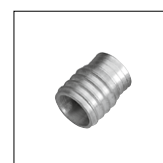
Z 876PL
Hose nipple



Z 881
Adapter doublesided hose nipple



Z 91
Extension tube



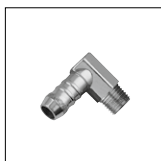
Z 942
Sealing plug



Z 835
Dummy nipple



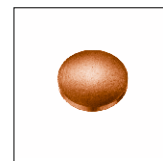
Z 877
Joining piece



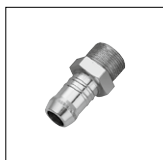
Z 89
Hose nipple, with tapered thread



Z 920
Manifold block



Z 9430
Sealing washer, for cooling channel



Z 87
Hose nipple



Z 878
Connector



Z 90
Extension nipple



Z 94
Sealing plug with tapered thread



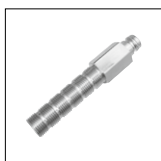
Z 9431
Mounting mandrel, for sealing washer



Z 87PL
Hose nipple, Push-Lok



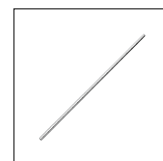
Z 88
Hose nipple



Z 900
Extension nipple



Z 940
Sealing plug cylindrical



Z 95
Brass tube

Article designation:

Ordering party:

Article number:

Compiled by:

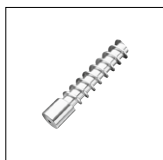
Drawing No.:

Date:

Z8

Specifications for injection moulds

Temperature control system



Z 96
Spiral core,
single threaded



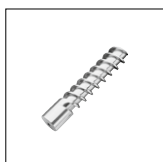
Z 9645
Diverting bridge



Z 9675
Diverting plug



Z 976
TempFlex



Z 961
Spiral core,
double threaded



Z 965
Plug baffle



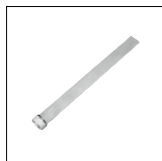
Z 9676
Diverting plug, base



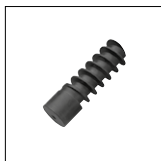
Z 977
TempFlex



Z 962
Junction tube



Z 9661
Plug baffle, straight



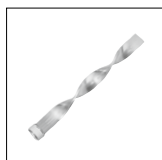
Z 968
Spiral core,
single threaded



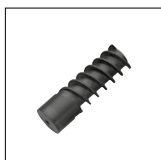
Z 99
CoolCross



Z 964
Diverting element



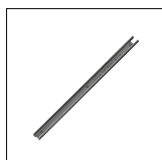
Z 9662
Plug baffle, spiral



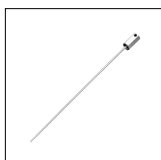
Z 969
Spiral core,
double threaded



Z 9641
Diverting element
with elongated hole



Z 967
Baffle core



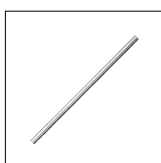
Z 97
Cascade water
junction



Z 9642
Diverting element



Z 9672
Diverting unit



Z 975
Heat transfer pipe

Article designation:

Ordering party:

Article number:

Compiled by:

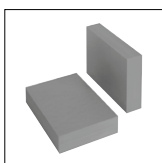
Drawing No.:

Date:

Z9
Specifications for injection moulds

Aids

Aids for inserts



A 4200
Flexible sealing
element



A 4300
Permanent
magnet

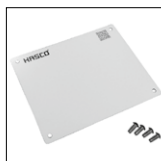
Aids for injection moulds



A 5800
Mould Memory



A 5805
Screw Memory



A 6500 Mehr
Name plate, printed,
with fixing holes

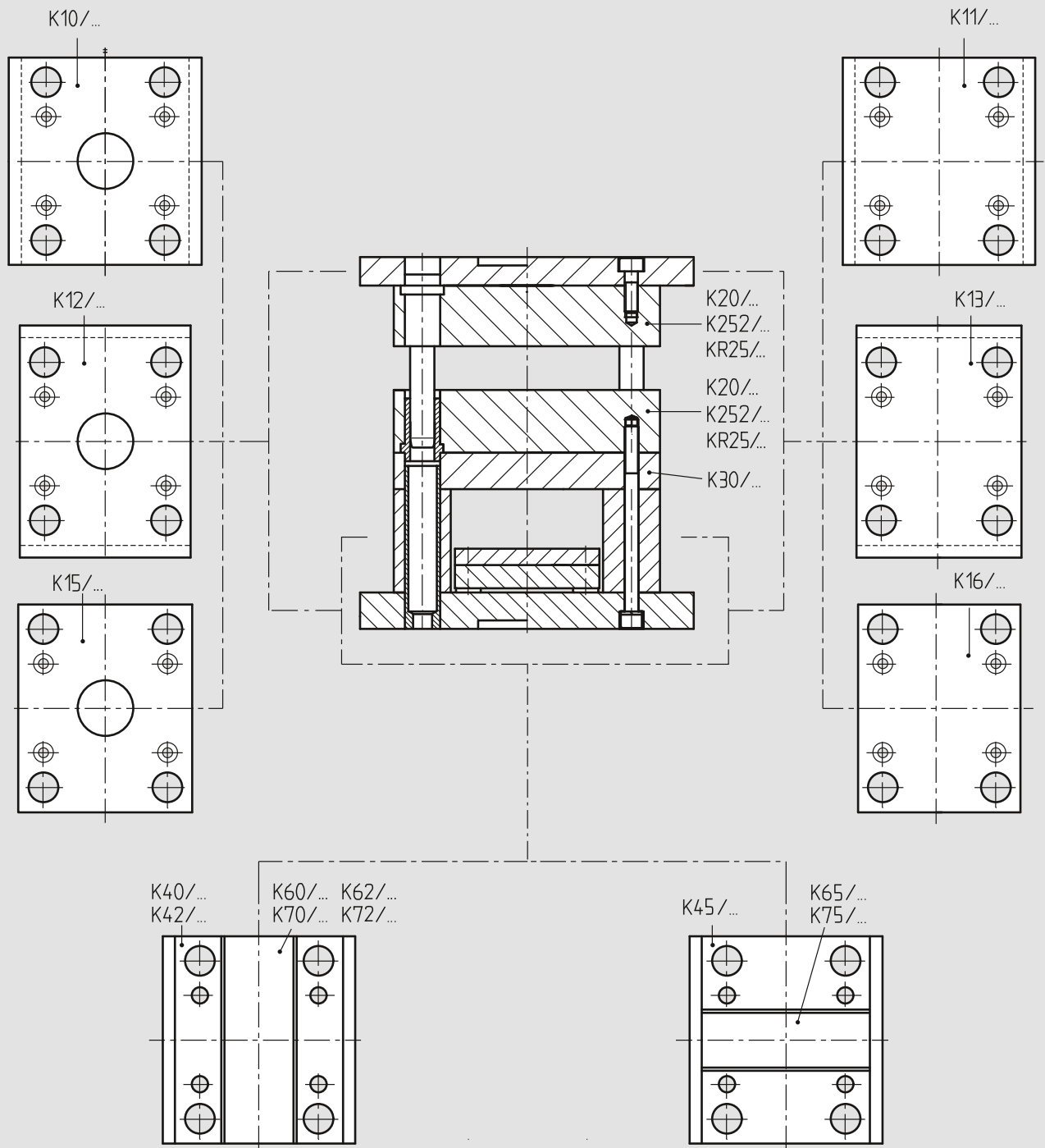
*Specifications for injection moulds***Enclosures**

	<i>Standard mould unit</i>	<i>34</i>
	<i>KR / PR Insert modular system</i>	<i>35</i>
	<i>K 2500 / 2501 – Split mould kits</i>	<i>37</i>
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	<i>Enquiry document Z 3600/S</i>	<i>80</i>

Standard-Werkzeugaufbau mit Varianten von Aufspannplatten und Leisten

Standard mould base assembly with variations of clamping plates and risers

Carcasses de moules standards avec différentes variantes de semelles et de tasseaux



Neu: Breite Leisten

Um die Gefahr der Durchbiegung zu minimieren, beachten Sie bitte auch die neuen Breiten Leisten K42/... mit den dazugehörigen Auswerferplatten K62/..., K72/... im Prospekt „Breite Leisten“.

New: Wide risers

To minimise the danger of deflection, please note the new wide risers K42/... with the associated ejector plates K62/... and K72/... in the leaflet "Wide risers".

Nouveau: Tasseaux larges

Pour minimiser le risque de torsion, veuillez prendre connaissance des nouveaux tasseaux larges K42/... et les batteries d'éjection correspondantes K62/..., K72/... dans le prospectus «Tasseaux larges».



HASCO®

Ermöglichen mit System.

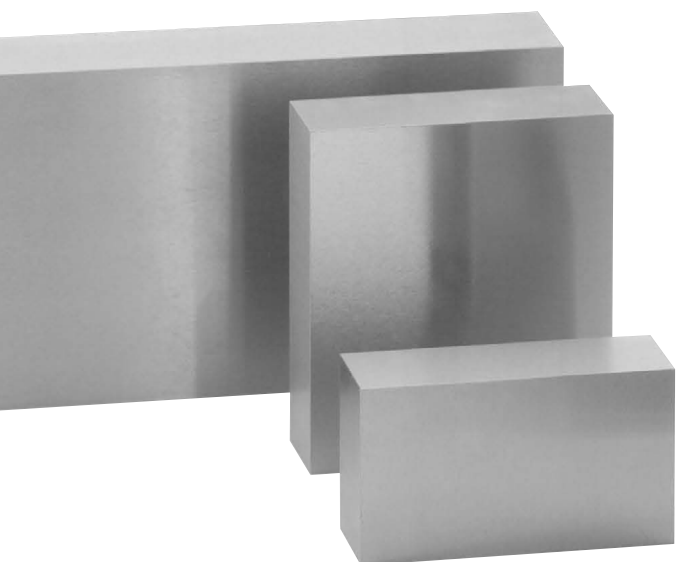
KR / PR

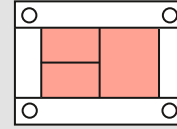
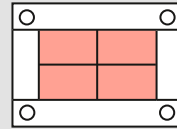
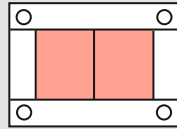
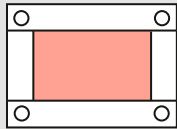
Einsatz-Baukastensystem
Insert-Modular System
Système modulaire d'insert

KR 25/... Rahmenformplatte finden Sie im Register K.

KR 25/... bolster plate, please refer to the K-section.

Vous trouverez plaque porte-empreinte avec logement
KR 25/... à le répertoire K.

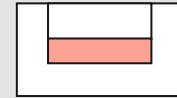
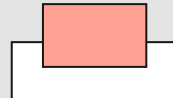
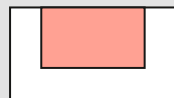
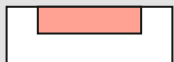




Durch die systematische maßliche Abstufung der Einsätze sind diese beliebig kombinierbar. Die Arbeitsfläche läßt sich entsprechend der fertigungstechnischen Gegebenheiten unterteilen.

Because of their systematically graded sizing, the inserts can be combined as desired. The working surface can be subdivided in accordance with manufacturing conditions.

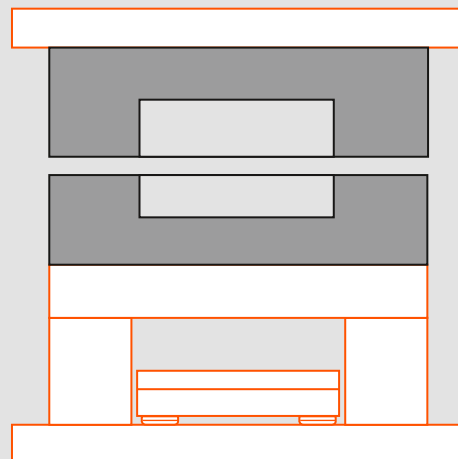
L'échelle dimensionnelle systématique des inserts permet de les combiner à volonté. La surface de travail peut être subdivisée en fonction des besoins de la fabrication.



Die Einsatzdicken entsprechen den Aufnahmen der Formplatten. Sie sind ebenfalls beliebig kombinierbar, wenn z. B. Konturbereiche in die Gegenseite ragen müssen.

The thicknesses of the inserts correspond to the pockets of the cavity plates. They can also be combined as desired, e.g. if cavity contours have to project into the opposite side.

Les épaisseurs des inserts correspondent aux parties appropriées des plaques porte-empreintes. Elles peuvent également être combinées à volonté lorsque les contours doivent par ex. pénétrer dans la partie opposée.



Die zusätzlich zur Komplettierung der Werkzeuge erforderlichen Bauteile sowie technische Information und Anwendungsbeispiele sind im HASCO-Gesamtkatalog aufgeführt.

The HASCO catalogue contains the additional components required to complete the mould, technical information and examples of application.

Les éléments supplémentaires nécessaires pour compléter les moules ainsi que des informations techniques et les domaines d'application sont donnés dans le catalogue général HASCO.



HASCO[®]

Ermöglichen mit System.

K 2500 /...

K 2501 /...

Backenwerkzeuge
Split Mould Kits
Moule à tiroirs

Auswerfer- und Abstreiferversion –
kompatibel zum K-Programm

Ejector type and Stripper type –
compatible with the K programme

Version à éjecteur et version à démouleur –
compatible avec la gamme K





K 2500 / 2501 – Split mould kits

K 2500 / ...

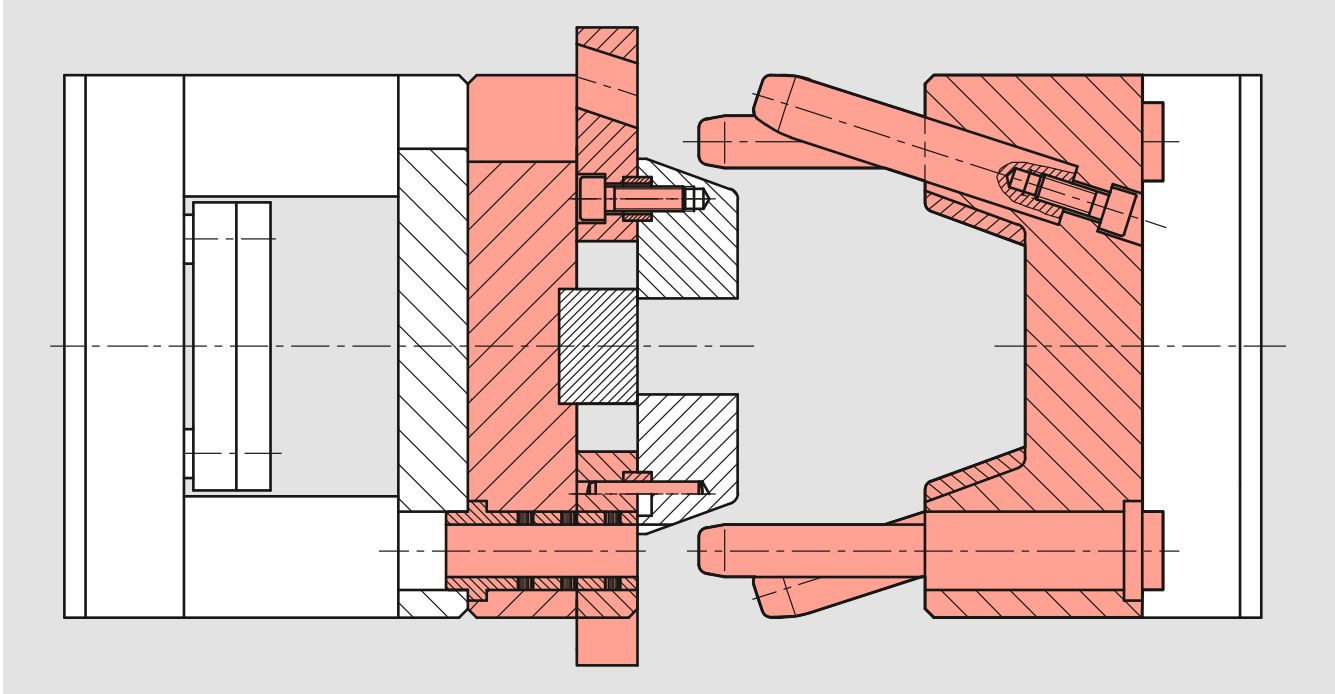
Backenwerkzeug
(Auswerferversion)

K 2500 / ...

Split mould kit
(Ejector type)

K 2500 / ...

Moule à tiroirs
(version à éjecteur)



Die neuen HASCO Backenwerkzeuge K 2500 / ... und K 2501 / ... lösen die Backenwerkzeuge K 2000 / ... und K 2010 / ... ab.

The new HASCO split mould kits K 2500 / ... and K 2501 / ... replace split mould kits K 2000 / ... and K 2010 /

Les nouveaux moules à tiroirs K 2500 / ... et K 2501 / ... de HASCO remplacent désormais les modèles K 2000 / ... et K 2010 /

Die Abmessungen von K 2500 / ... sind kompatibel zum HASCO K-Programm.

The dimensions of K 2500 / ... are compatible with the HASCO K programme.

Les cotes du modèles K 2500 / ... sont compatibles avec la gamme K de HASCO.



Besondere Merkmale

- Abhängig von der Spritzteil-geometrie kann zwischen der Auswerferversion K2500/... und der Abstreiferversion K2501/... gewählt werden.
- K2500/... und K2501/... sind jeweils in 8 Größen mit je 5 Backenhöhen verfügbar.
- Backen (K2528/...) und Kernhalte-einsatz (K2531/...) gehören nicht zum Lieferumfang.
- Bauteile und Backenbetätigung liegen innerhalb der Werkzeug-abmessungen.
- Nachschleifbare Backenführung.
- Austauschbare Druckplatten.
- Backen (K2528/...) voll nutzbar für Kontur und Kühlung.
- Backenlänge entspricht Werkzeug-breite.
- Passfeder-Nut in K2528/... (Mat. 1.2767/1.2343 ESU) mit Aufmaß zum Nachschleifen nach dem Härten.
- Härteverzug der Backen ohne Einfluss auf die Führung.
- Länge des Kernhalte-einsatzes (K2531/...) entspricht Werkzeug-breite.
- Schwalbenschwanz-Führung leicht nachstellbar.
- Kein Verkanten der Führung durch günstiges Längen-/Breitenverhältnis.
- Sicherung der Backen durch inte-grierte Kugelrasten.
- Freier Fall der Spritzteile.
- Selbstschmierende Backen-führungsleisten und Führungsbuchsen.

Features

- To suit moulding geometry, the designer has the choice between Ejector type K2500/... and the Stripper type K2201/...
- K2500/... as well as K2501/... are available in 8 sizes with 5 split heights each.
- Splits (K2528/...) and core retainer insert (K2531/...) are not supplied.
- Construction elements and angle pins actuation are positioned within the mould.
- Regrindable split guides.
- Interchangeable wear plates.
- Splits (K2528/...) can be fully utilized for cavity contour and cooling.
- Split length is equal to mould width.
- Parallel slot in K2528/... (Mat. 1.2767/1.2343 ESU) with dimensions re-ground according to hardness.
- Distortion on hardening of splits does not affect the guiding system.
- Length of core retainer insert (K2531/...) is equal to mould width.
- Easy readjustment of dovetailed guide strips.
- No tilting of split guide due to favourable length/width ratio.
- Splits are secured by integrated spring plungers.
- Undisturbed drop of mouldings.
- Guide strips and guide bushings are offered in selflubricating design.

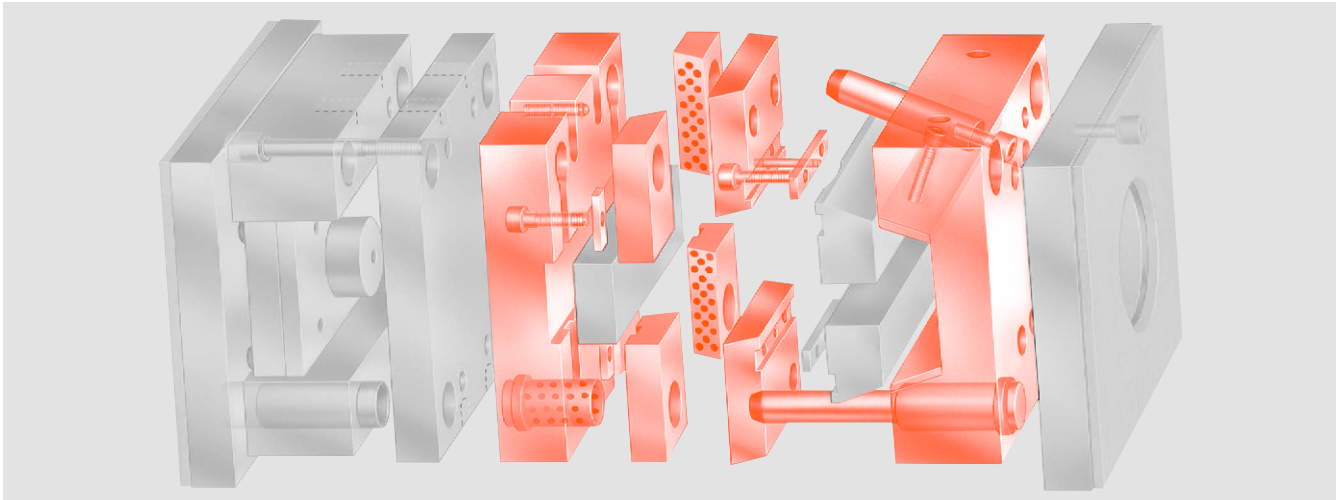
Caractéristiques techniques

- Il est possible de choisir, en fonction de la géométrie des pièces à injecter, entre la version à éjecteur K2500/... et la version à démouleur K2501/...
- K2500/... et K2501/... sont disponibles chacun en 8 tailles disposant de 5 hauteurs différentes de tiroirs.
- Les plaques (K2528/...) et le support de noyau (K2531/...) ne sont pas compris dans la livraison.
- Les éléments de construction et d'actionnement des tiroirs sont positionnés à l'intérieur des cotes du moule.
- Le guidage de plaques peut être à nouveau poli.
- Les plaques de pression sont interchangeables.
- Tiroirs (K2528/...) entièrement utilisables pour l'empreinte et le refroidissement.
- La longueur de tiroirs correspond à la largeur du moule.
- Gorge pour ressort d'ajustage dans K2528/... (Mat. 1.2767/1.2343 ESU) avec surcote pour ponçage ultérieur d'ajustage après le trempage.
- Les éventuelles déformations des tiroirs (trempe), n'influent pas le système de guidage.
- La longueur du support de noyau (K2531/...) correspond à la largeur du moule.
- Guidage en queue d'aronde facile-ment ajustable.
- Blocage impossible du guidage en raison d'un rapport longueur/largeur étudié.
- Blocage des tiroirs assuré par vis à billes intégrées.
- Dégagement libre des pièces injectées.
- Barres conductrices des tiroirs et bagues de guidage exemptes d'entretien.





K 2500 / 2501 – Split mould kits



Bestellbeispiel:

Backenwerkzeug, Größe 100 x 130
(Auswerferversion)

Ordering example:

Split mould kit, size 100 x 130
(Ejector type)

Exemple de commande:

Moule à tiroirs version 100 x 130
(version à éjecteur)

		K 2500 / 100 x 130 x 40
1	_____	_____
2	_____	_____
3	_____	_____

- 1 Produkt Nr. für Backenwerkzeug
- 2 Abmessung: Länge x Breite
- 3 Backenhöhe

- 1 Produkt No. of split mould kit
- 2 Mould size: Length x Width
- 3 Split height

- 1 N° de produit pour moule à tiroir
- 2 Dimensions: longueur x largeur
- 3 Hauteur des tiroirs

Beachten:

Die Backen K2528/... und der Kernhalteinsatz K2531/... gehören nicht zum Lieferumfang!

Caution:

Splits K2528/... and core retainer insert K2531/... are not supplied!

Remarque:

Les plaques K 2528/... et le support de noyau K2531/... ne sont pas compris dans la livraison!



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156 x 156	156 x 156	156 x 156		252
156 x 196	156 x 196	156 x 196		254
190 x 246	190 x 246	190 x 246		256
196 x 196	196 x 196	196 x 196		258
246 x 246	246 x 246	246 x 246		260
246 x 296	246 x 296	246 x 296		262
296 x 296	296 x 296	296 x 296		264
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156 x 156	156 x 156	156 x 156		272
156 x 196	156 x 196	156 x 196		274
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K 2500 / 2501 – Split mould kits

Wichtige Werkzeugmaße

für K2500/... und K2501/...

- Backenlänge
- Backenhöhe
- Backenöffnungsweg
- Max. Arbeitsflächen

Important mould dimensions

for K2500/... and K2501/...

- Split length
- Split height
- Opening stroke of splits
- Max. working area

Importantes cotes d'outils

pour K2500/... et KK2501/...

- Longueur de tiroir
- Hauteur de tiroir
- Course d'ouverture des tiroirs
- Surfaces max. de travail

Größe Size Taille	Backen-Öffnungsweg Opening stroke of splits Course d'ouverture des tiroirs	Backenhöhe Split height Hauteur des tiroirs									Backenlänge Split length Longueur des tiroirs
		16	20	25	32	40	50	63	80	100	
100 x 130	16										100
156 x 156	28										156
156 x 196	45										156
190 x 246	56										190
196 x 196	40										196
246 x 246	53										246
246 x 296	68										246
296 x 296	68										296

⚠ Beachten:

Die Backenhöhen und -längen für eine quadratische und die dazugehörige rechteckige Größe (z. B. 156 x 156 und 156 x 196) sind gleich. Bei den rechteckigen Größen sind die Backen entsprechend breiter, dadurch optimale Ausnutzung der Formkontur.

⚠ Caution:

For each square and following rectangular mould size (e. g. 156 x 156 and 156 x 196) all split heights and -lengths are of the same. On rectangular mould sizes the splits are correspondingly wider to provide for optimal utilisation of cavity contour.

⚠ Remarque:

La hauteur et la longueur des tiroirs sont identiques pour des tailles carrées et rectangulaires (Ex: 156 x 156 et 156 x 196). Dans le cas de moules rectangulaires, les tiroirs sont plus larges, pour permettre une meilleure utilisation.

Toleranzen:

siehe K-Katalog, Vorschaltseite (Ausgabe 05/01)

Tolerances:

Ref. K catalogue, opening page (Issue 05/01)

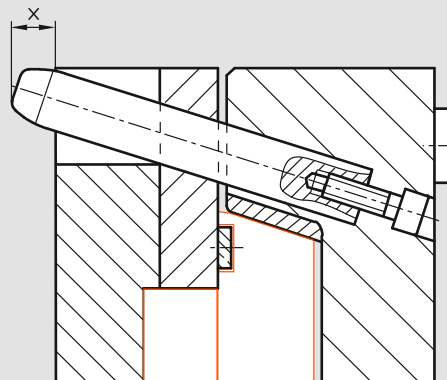
Tolérances:

Cf. catalogue des standards K, page des éléments de commutation (version 05/01)

Überstand des Schrägbolzens

Projection of angle pin

Dépassement du doigt incliné



⚠ Beachten:

Dieser Überstand (x) kann je nach Werkzeuggröße bis zu 40 mm betragen.

⚠ Caution:

The projection (x) can measure 40 mm according to tool size.

⚠ Remarque:

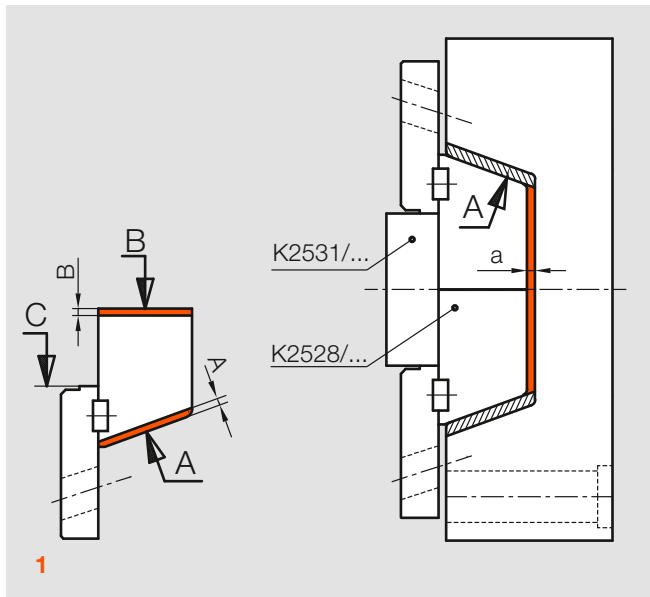
Ce dépassement (x) peut atteindre jusqu'à 40 mm, selon les tailles d'outils.



Technische Informationen

Technical information

Information techniques



2

a	$A = \sin 20^\circ \cdot a$	$B = \tan 20^\circ \cdot a$
0,05	0,017	0,018
0,10	0,034	0,036
0,20	0,068	0,073
0,50	0,171	0,182
1,00	0,342	0,364

$$A = \sin 20^\circ \cdot a$$

A: Abzuschleifendes Maß von der Schrägfläche

a: zu verringerndes Spiel

z.B.: a = 0,65

$$A = 0,342 \cdot 0,65 = 0,222 \text{ mm}$$

$$B = \tan 20^\circ \cdot a$$

B: Abzuschleifendes Maß von der Gravurfläche

a: zu verringerndes Spiel

z.B.: a = 0,65

$$B = 0,3641 \cdot 0,65 = 0,237 \text{ mm}$$

$$A = \sin 20^\circ \cdot a$$

A: Amount to be ground off from the sloped surface

a: Clearance to be reduced

e.g.: a = 0,65

$$A = 0,342 \cdot 0,65 = 0,222 \text{ mm}$$

$$B = \tan 20^\circ \cdot a$$

B: Amount to be ground off from the parting surface

a: Clearance to be reduced

e.g.: a = 0,65

$$B = 0,3641 \cdot 0,65 = 0,237 \text{ mm}$$

$$A = \sin 20^\circ \cdot a$$

A: Surface inclinée à rectifier

a: Jeu à réduire

par ex: a = 0,65

$$A = 0,342 \cdot 0,65 = 0,222 \text{ mm}$$

$$B = \tan 20^\circ \cdot a$$

B: Surface plan de joint à rectifier

a: Jeu à réduire

par ex: a = 0,65

$$B = 0,3641 \cdot 0,65 = 0,237 \text{ mm}$$



Einpassen der Formbacken

Bild 2

Zum Einpassen der Backen K2910/... in die düsenseitige Backenschließplatte ist das Spiel „a“ vorgesehen.

Bild 1

Dieses wird durch Übersleifen der Backen in Pfeilrichtung „A“ und/oder „B“ beseitigt, wahlweise durch Übersleifen der gehärteten Druckplatten.

Zur Mittenfixierung stützen sich die Backenführungen am Kernhalteinsatz K2531/... ab. Beim Fertigschleifen wird ein Spiel zwischen der Stirnseite der Backenführung und dem Kernhalteinsatz von 0,05 mm empfohlen.

Beim Übersleifen der Backenstirnflächen „B“ muss auch die Backenführung im Bereich „C“ nachgesetzt werden.

Fitting of splits

Fig. 2

The clearance „a“ is provided for fitting the splits into the chase bolster.

Fig. 1

By regrinding splits surface „A“ and/or „B“, if required also hardened wear plate, this clearance can be eliminated.

For centre aligning the split guides rest against the core retainer insert K2531/... When finish grinding a clearance of 0,05 mm between the front face of split guides and core retainer insert is recommended.

When regrinding parting surface of splits „B“, same amount must be ground off from the front face of split guides „C“.

Ajustage des tiroirs

Fig. 2

Le jeu „a“ est prévu pour l'ajustage des tiroirs K2910/... dans la plaque de fermeture côté buse.

Fig. 1

Le jeu est éliminé par rectification des tiroirs dans le sens de la flèche «A» et/ou «B» et en travaillant également les plaques de pression.

Pour l'alignement au centre, les guidages des tiroirs prennent appui sur le support de noyau K2531/... Lors de l'ajustage final, un jeu de 0,05 mm entre la face du guidage des tiroirs et le support de noyau est recommandé.

Lors de la rectification des surfaces frontales des tiroirs «B», le guidage doit également être réajusté.



Positionierung der Formbacken

Bild 3

Um ein Vertauschen der Backen zu verhindern ist ein Passstift außermittig angeordnet, der auch gleichzeitig die Backen in Längsrichtung präzise positioniert.

Die Passfeder zwischen Backe und Backenführung garantiert eine exakte Positionierung in Laufrichtung.

Positioning of mould splits

Fig. 3

To prevent mix-up of splits a dowel pin is located off-centre, it also serves the purpose of precisely fixing the splits in longitudinal direction.

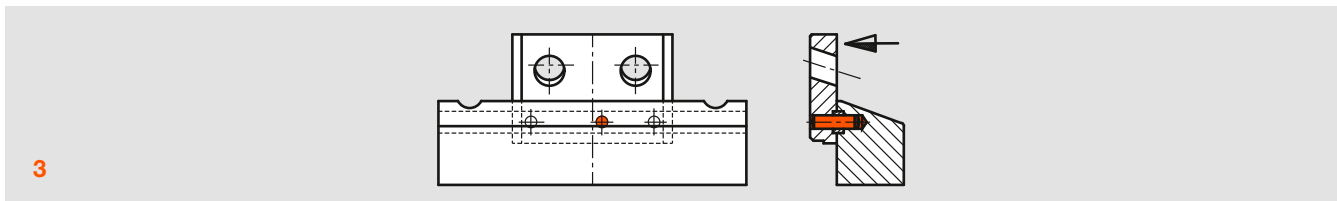
The parallel key between split and split guide ensures an exact alignment in traveling direction.

Positionnement des tiroirs

Fig. 3

Afin d'éviter une inversion des tiroirs, des goupilles d'assemblage excentrées, positionnent en même temps les tiroirs dans le sens longitudinal.

La vis à bille ressort entre le tiroir et le guidage garantit un positionnement exact.



Eine problemlose Nachstellung ist durch Überschleifen der Backenführung in Pfeilrichtung sichergestellt.

For easy readjusting of guiding system only the split guide has to be reground on surface pointed to by arrow.

Pour un réajustage facile du système de guidage, seuls les guides des tiroirs seront rectifiés en surface (dans le sens de la flèche).



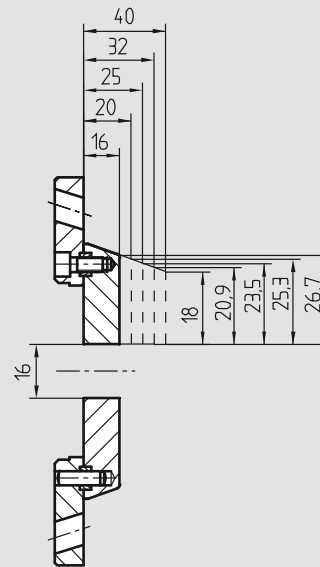
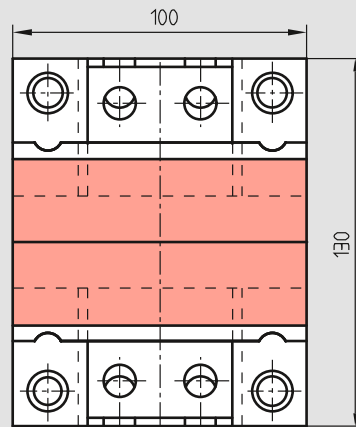
K 2500 / 2501 – Split mould kits

Max. Arbeitsflächen

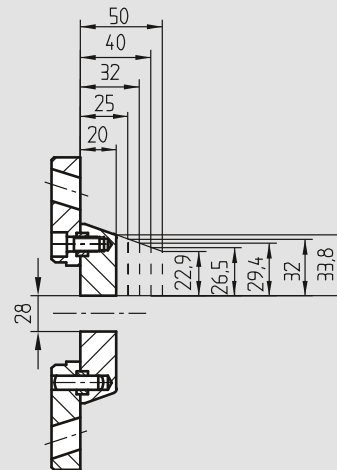
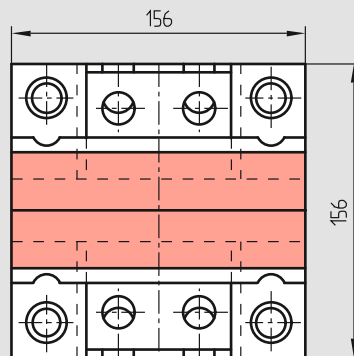
Max. Working areas

Surfaces max. de travail

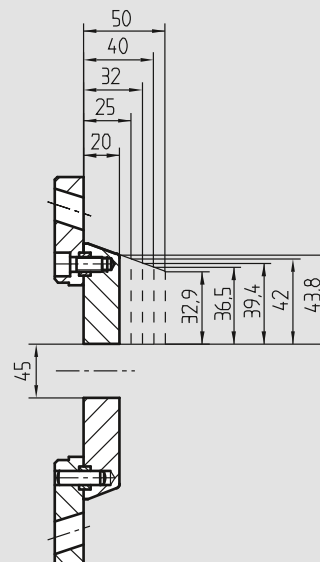
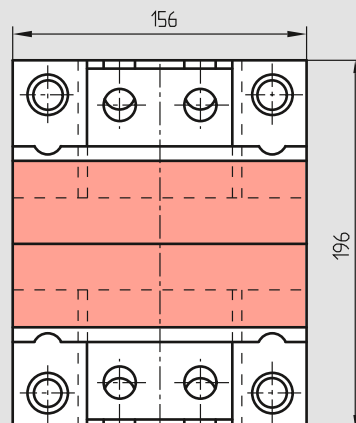
100 x 130



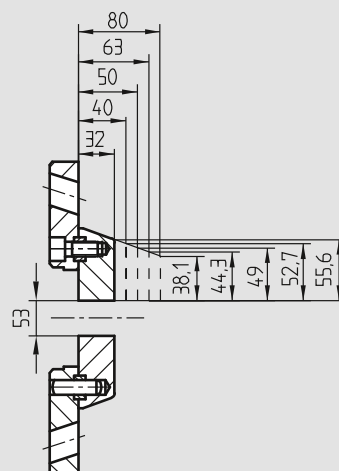
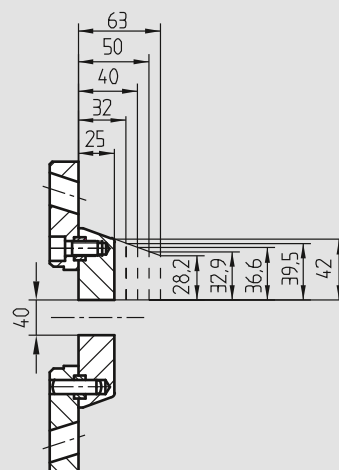
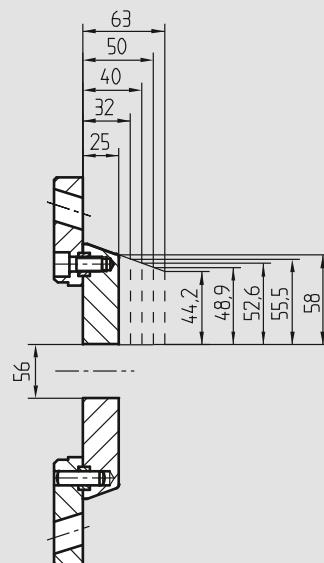
156 x 156



156 x 196



Surfaces max. de travail



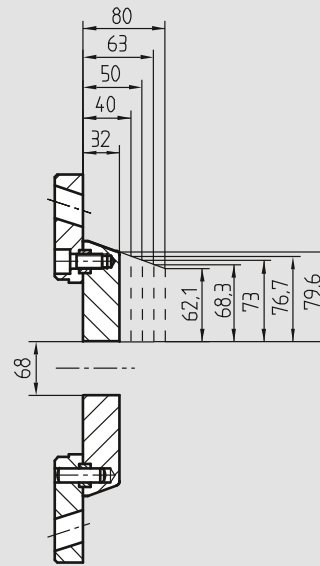
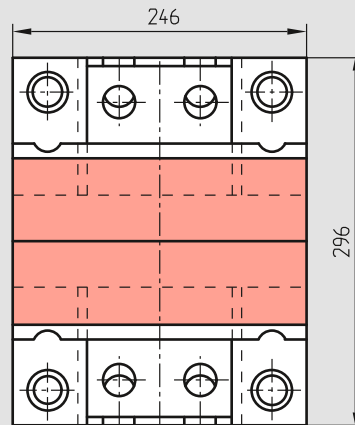


Max. Arbeitsflächen

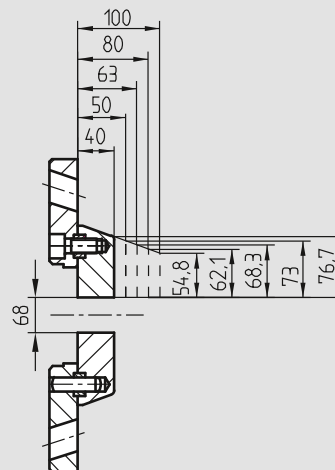
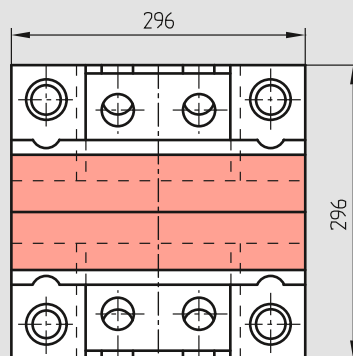
Max. Working areas

Surfaces max. de travail

246 x 296



296 x 296



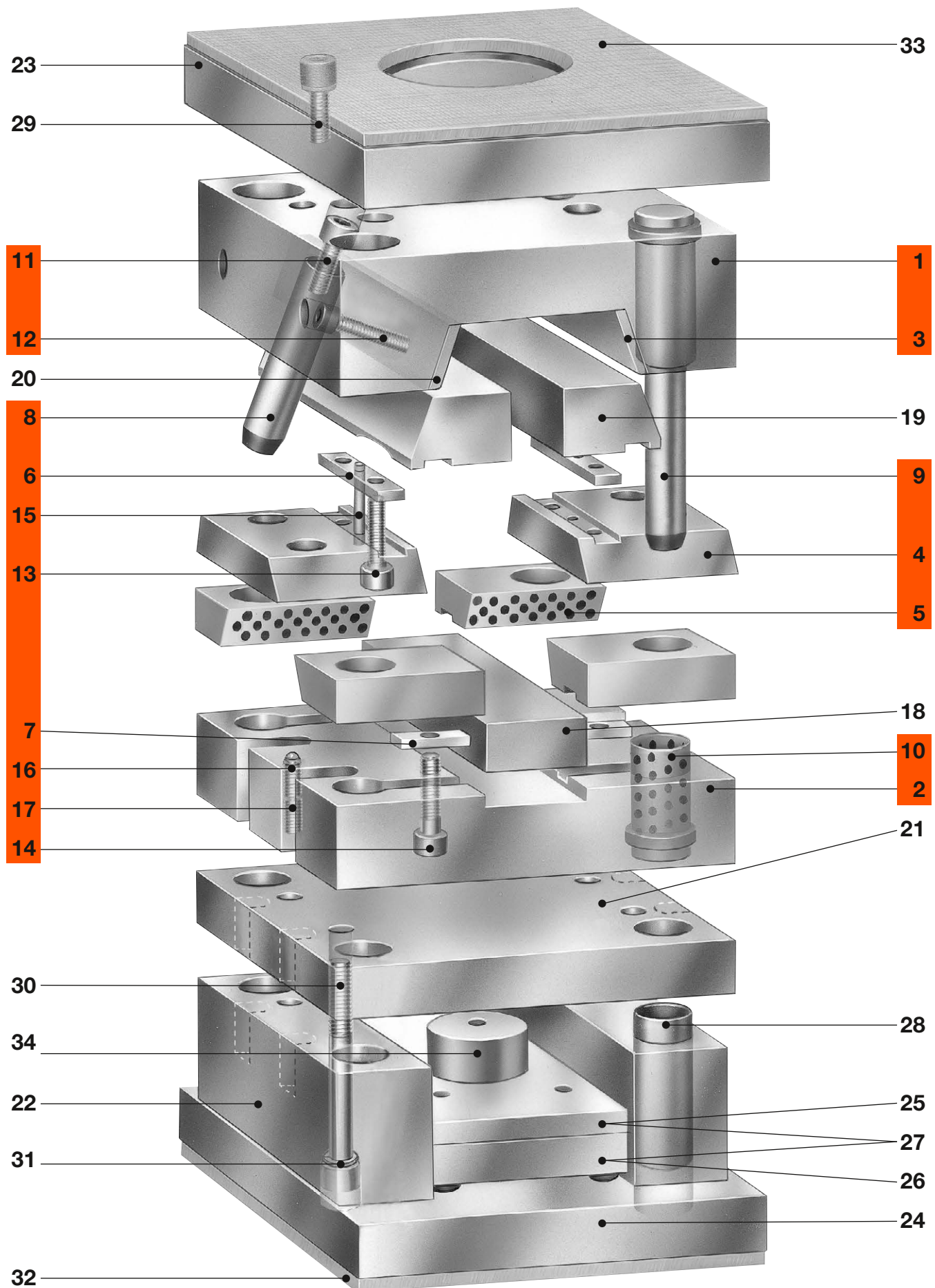


K 2500 / 2501 – Split mould kits

K 2500 / ... Auswerferversion

K 2500 / ... Ejector type

K 2500 / ... Version à éjecteur



K 2500 / 2501 – Split mould kits

K 2500/... Auswerferversion

K 2500/... Ejector type

K 2500/... Version à éjecteur

Pos.	Benennung	Designation	Désignation	Stück Quant. Pièce	Nr./Norm No./Standard N°/Norme	Material/Härte Material/Hardness Matériau/Dureté
1	Backenschließplatte	Chase bolster	Plaque de fermeture des tiroirs	1		1.2312
2	Backengrundplatte	Splits retainer plate	Plaque de base des tiroirs	1		1.2312
3	Druckplatte	Wear plate	Plaque de pression	2		1.2842 / 53 + 2 HRC
4	Backenführung	Split guide	Guide des tiroirs	2		1.2767 / 52 ± 2 HRC
5	Backenführungsleiste	Guide strip	Barre conductrice des tiroirs	4		2.0492
6	Passfeder, lang	Parallel key, long	Ressort d'ajustage, long	2		1.2312
7	Passfeder, kurz	Parallel key, short	Ressort d'ajustage, court	4		1.2312
8	Schrägsäule	Angle pin	Doigt incliné	4	Z 010/...	1.0401
9	Führungssäule	Guide pillar	Colonne de guidage	3 + 1	Z 04/...	DIN 16761-A
10	Führungsbuchse	Guide bushing	Bague de guidage	3 + 1	Z 1000W/...	DIN 16716-C
11	Zylinderschraube	SHC-screw	Vis à tête cylindrique	4	Z 31/... DIN EN ISO 4762	
12	Zylinderschraube	SHC-screw	Vis à tête cylindrique	4	Z 31/... DIN EN ISO 4762	
13	Zylinderschraube	SHC-screw	Vis à tête cylindrique	4	Z 31/... DIN EN ISO 4762	
14	Zylinderschraube	SHC-screw	Vis à tête cylindrique	8	Z 31/... DIN EN ISO 4762	
15	Zylinderstift	Dowel pin	Goupille cylindrique	2	Z 26/.../DIN EN 28735	
16	Federndes Druckstück	Ball catch	Vis à bille sans tête	2	Z 371/...	1.4305
17	Gewindestift	Set screw	Tige sans tête	2	Z 35/.../DIN 913	

Sonstige Bauteile

Extra Bestellung erforderlich

Other components

Extra order required

Autres éléments

Commande spéciale nécessaire

Pos.	Benennung	Designation	Désignation	Stück Quant. Pièce	Nr./Norm No./Standard N°/Norme	Material/Härte Material/Hardness Matériau/Dureté
18	Kernhalteinsatz	Core retainer insert	Support de noyau	1	K 2531/...	1.2767
19	Backe	Split	Tiroir	2	K 2528/...	1.2767 / 1.2343 ESU
20	Druckplatte (Ersatzteil)	Wear plate (spare part)	Pl. de pression (pièce de rech.)		K 2526/...	1.2842 / 53 + 2 HRC
21	Zwischenplatte	Backing plate	Plaque intermédiaire	1	K 30/...	1.1730, 1.2312
22	Leiste	Riser	Tasseau	2	K 40/... ²⁾ ; K 45/... ³⁾	1.1730
23	Aufspannplatte	Clamping plate	Plaque de fixation	1)	K 10/...; K 12/...	1.1730
24	Aufspannplatte	Clamping plate	Plaque de fixation	1)	K 11/...; K 13/...	1.1730
25	Auswerferhalteplatte	Ejector retainer plate	Plaque d'éjecteur	1)	K 60/... ²⁾ ; K 65/... ³⁾	1.1730
26	Auswerfergrundplatte	Ejector base plate	Contre plaque d'éjection	1)	K 70/... ²⁾ ; K 75/... ³⁾	1.2312
27	Auswerferpaket	Ejector assembly	Batterie d'éjection	1	K 60/70/... ²⁾ ; K 65/75/... ³⁾	1.1730
28	Zentrierhülse	Centering sleeve	Douille de centrage	4	Z 20/...	DIN 16759
29	Zylinderschraube	SHC-screw	Vis à tête cylindrique	4	Z 31/... DIN EN ISO 4762	10.9
30	Zylinderschraube	SHC-screw	Vis à tête cylindrique	4	Z 31/... DIN EN ISO 4762	10.9
31	Sperrkantring	Locking edge washer	Rondelle à bords d'arrêt	8	Z 691/...	DIN 17221
32	Wärmeisolerplatte	Thermal insulating sheet	Plaque isolante	1)	Z 121/...; Z 1211/...; Z 1212/...	
33	Wärmeisolerplatte	Thermal insulating sheet	Plaque isolante	1)	Z 121/...; Z 1211/...; Z 1212/...	
34	Stützsäule	Support pillar	Plot de soutien	1)	Z 57/...; Z 571/... DIN ISO 10073-B	

- 1) Typ und Abmessung ist vom Konstrukteur festzulegen
- 2) Für quadratische Größen = K 40/...; K 60/...; K 70/...; K 60/70/...
- 3) Für rechteckige Größen = K 45/...; K 65/...; K 75/...; K 65/75/...

- 1) Type and dimension is to be fixed by the designer
- 2) For square sizes = K 40/...; K 60/...; K 70/...; K 60/70/...
- 3) For rectangular sizes = K 45/...; K 65/...; K 75/...; K 65/75/...

- 1) Le type et les cotes doivent être définis par le constructeur.
- 2) Pour moules carrés = K 40/...; K 60/...; K 70/...; K 60/70/...
- 3) Pour moules rectangulaires = K 45/...; K 65/...; K 75/...; K 65/75/...

⚠ Beachten:

Die Zwischenplatte, Pos. 21 oder Leiste Pos. 22 muss je nach konstruktiver Ausführung mit Freisparungen für die Schrägsäulen Pos. 8 versehen werden.

⚠ Caution:

According to the design the backing plate, item 21, or riser, item 22, must be provided with clearance recesses for angle pins, item 8.

⚠ Remarque:

La plaque intermédiaire, pos. 21, ou le tasseau, pos. 22, doivent présenter, selon le modèle construit, des orifices libres pour le doigt incliné, pos. 8.

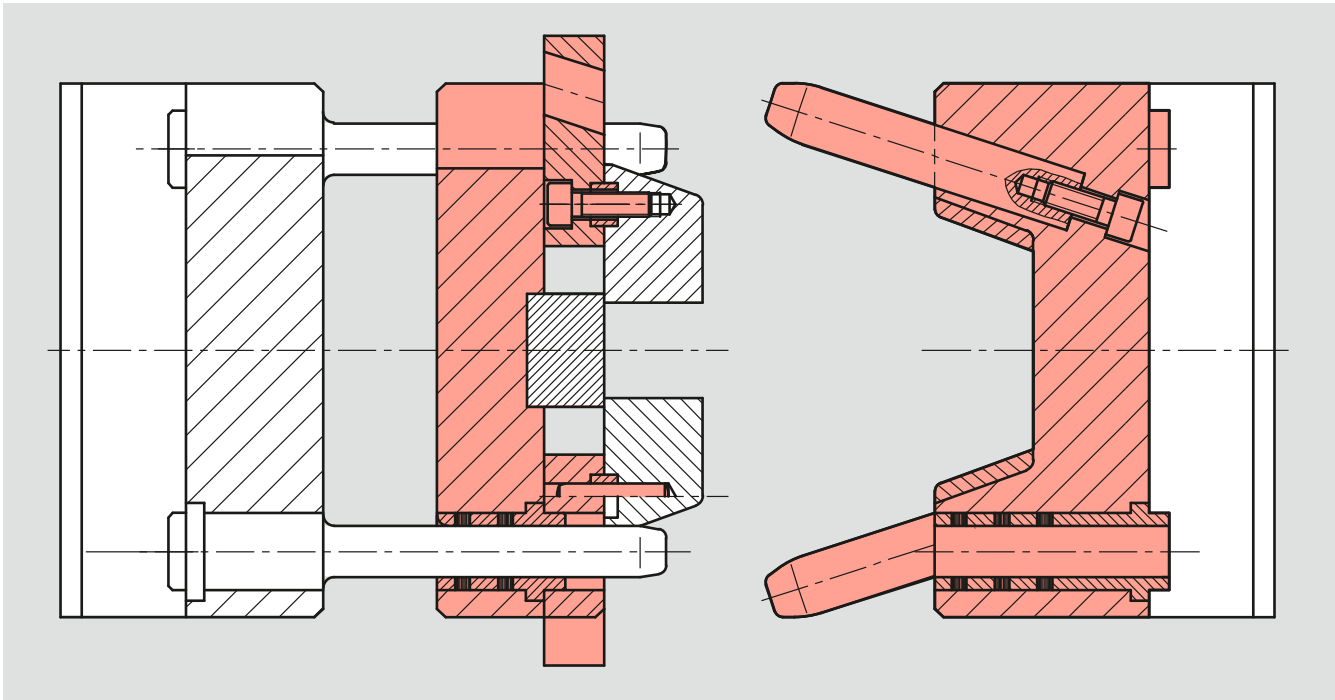


K 2500 / 2501 – Split mould kits

K 2501/...
Backenwerkzeug
(Abstreiferversion)

K 2501/...
Split mould kit
(Stripper type)

K 2501/...
Moule à tiroirs
(version à démouleur)



Die neuen HASCO Backenwerkzeuge K2500/... und K2501/... lösen die Backenwerkzeuge K2000/... und K2010/... ab.

The new HASCO split mould kits K2500/... and K2501/... replace split mould kits K2000/... and K2010/...

Les nouveaux moules à tiroirs K2500/... et K2501/... de HASCO remplacent désormais les modèles K2000/... et K2010/...

Die Abmessungen von K2501/... sind kompatibel zum K-Programm.

The dimensions of K2501/... are compatible with the K programme.

Les cotes du modèle K2501/... sont compatibles avec la gamme K.



Besondere Merkmale

Features

Caractéristiques techniques

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> – Abhängig von der Spritzteilgeometrie kann zwischen der Auswerferversion K2500/... und der Abstreiferversion K2501/... gewählt werden. – K2500/... und K2501/... sind jeweils in 8 Größen mit je 5 Backenhöhen verfügbar. – Backen (K2528/...) und Kernhalte-einsatz (K2531/...) gehören nicht zum Lieferumfang. – Bauteile und Backenbetätigung liegen innerhalb der Werkzeug-abmessungen. – Nachschleifbare Backenführung. – Austauschbare Druckplatten. – Backen (K2528/...) voll nutzbar für Kontur und Kühlung. – Backenlänge entspricht Werkzeug-breite. – Passfeder-Nut in K2528/... (Mat. 1.2767) mit Aufmaß zum Nachschleifen nach dem Härten. – Härteverzug der Backen ohne Einfluss auf die Führung. – Länge des Kernhalte-einsatzes (K2531/...) entspricht Werkzeug-breite. – Schwalbenschwanz-Führung leicht nachstellbar. – Kein Verkanten der Führung durch günstiges Längen-/Breitenverhältnis. – Sicherung der Backen durch integrierte Kugelrasten. – Freier Fall der Spritzteile. – Selbstschmierende Backenführungs-leisten und Führungsbuchsen. | <ul style="list-style-type: none"> – To suit moulding geometry, the designer has the choice between Ejector type K2500/... and the Stripper type K2201/... – K2500/... as well as K2501/... are available in 8 sizes with 5 split heights each. – Splits (K2528/...) and core retainer insert (K2531/...) are not supplied. – Construction elements and angle pins actuation are positioned within the mould. – Regrindable split guides. – Interchangeable wear plates. – Splits (K2528/...) can be fully utilized for cavity contour and cooling. – Split length is equal to mould width. – Parallel slot in K2528/... (Mat. 1.2767) with dimensions re-ground according to hardness. – Distortion on hardening of splits does not affect the guiding system. – Length of core retainer insert (K2531/...) is equal to mould width. – Easy readjustment of dovetailed guide strips. – No tilting of split guide due to favourable length/width ratio. – Splits are secured by integrated spring plungers. – Undisturbed drop of mouldings. – Guide strips and guide bushings are offered in selflubricating design. | <ul style="list-style-type: none"> – Il est possible de choisir, en fonction de la géométrie des pièces à injecter, entre la version à éjecteur K2500/... et la version à démouleur K2501/... – K2500/... et K2501/... sont disponibles chacun en 8 tailles disposant de 5 hauteurs différentes de tiroirs. – Les plaques (K2528/...) et le support de noyau (K2531/...) ne sont pas compris dans la livraison. – Les éléments de construction et d'actionnement des tiroirs sont positionnés à l'intérieur des cotes du moule. – Le guidage de plaques peut être à nouveau poli. – Les plaques de pression sont interchangeables. – Tiroirs (K2528/...) entièrement utilisables pour l'empreinte et le refroidissement. – La longueur de tiroirs correspond à la largeur du moule. – Gorge pour ressort d'ajustage dans K2528/... (Mat. : 1.2767) avec surcote pour ponçage ultérieur d'ajustage après le trempage. – Les éventuelles déformations des tiroirs (trempe), n'influent pas le système de guidage. – La longueur du support de noyau (K2531/...) correspond à la largeur du moule. – Guidage en queue d'aronde facilement ajustable. – Blocage impossible du guidage en raison d'un rapport longueur/largeur étudié. – Blocage des tiroirs assuré par vis à billes intégrées. – Dégagement libre des pièces injectées. – Barres conductrices des tiroirs et bagues de guidage exemptes d'entretien. |
|--|---|--|

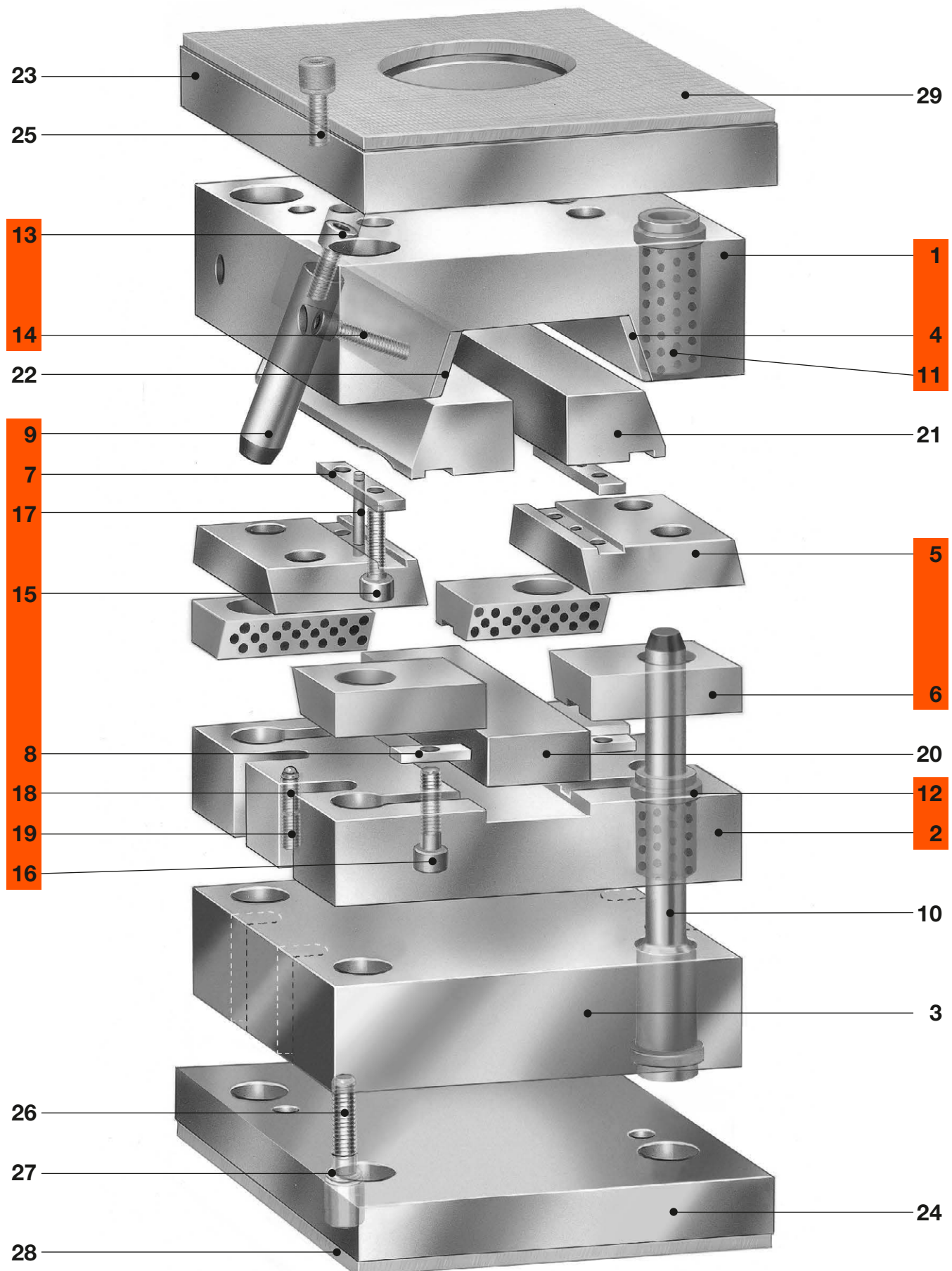


K 2500 / 2501 – Split mould kits

K 2501/... Abstreiferversion

K 2501/... Stripper type

K 2501/... Version à démouleur



K 2501/... Abstreiferversion

K 2501/... Stripper type

K 2501/... Version à démouleur

Pos.	Benennung	Designation	Désignation	Stück Quant. Pièce	Nr./Norm No./Standard N°/Norme	Material/Härte Material/Hardness Matériau/Dureté
1	Backenschließplatte	Chase bolster	Plaque de fermeture des tiroirs	1		1.2312
2	Backengrundplatte	Splits retainer plate	Plaque de base des tiroirs	1		1.2312
4	Druckplatte	Wear plate	Plaque de pression	2		1.2842/53 + 2 HRC
5	Backenführung	Split guide	Guide des tiroirs	2		1.2767/52 ± 2 HRC
6	Backenführungsleiste	Guide strip	Barre conductrice des tiroirs	4		2.0492
7	Passfeder, lang	Parallel key, long	Ressort d'ajustage, long	2		1.2312
8	Passfeder, kurz	Parallel key, short	Ressort d'ajustage, court	4		1.2312
9	Schrägsäule	Angle pin	Doigt incliné	4	Z 010/...	1.0401
11	Führungsbuchse	Guide bushing	Bague de guidage	3 + 1	Z 1000W/...	DIN 16761-C
12	Führungsbuchse	Guide bushing	Bague de guidage	3 + 1	Z 1000W/...	DIN 16761-C
13	Zylinderschraube	SHC-screw	Vis à tête cylindrique	4	Z 31/... DIN EN ISO 4762	10.9
14	Zylinderschraube	SHC-screw	Vis à tête cylindrique	4	Z 31/... DIN EN ISO 4762	10.9
15	Zylinderschraube	SHC-screw	Vis à tête cylindrique	4	Z 31/... DIN EN ISO 4762	10.9
16	Zylinderschraube	SHC-screw	Vis à tête cylindrique	8	Z 31/... DIN EN ISO 4762	10.9
17	Zylinderstift	Dowel pin	Goupille cylindrique	2	Z 26/... DIN EN 28735	
18	Federndes Druckstück	Spring plunger	Vis à bille sans tête	2	Z 371/...	1.4305
19	Gewindestift	Set screw	Vis sans tête	2	Z 35/... DIN 913	

Sonstige Bauteile

Extra Bestellung erforderlich

Other components

Extra order required

Autres éléments

Commande spéciale nécessaire

Pos.	Benennung	Designation	Désignation	Stück Quant. Pièce	Nr./Norm No./Standard N°/Norme	Material/Härte Material/Hardness Matériau/Dureté
3	Kernhalteplatte	Core retainer plate	Plaque de noyau	1	K 20/...	1.1730
10	Führungssäule	Guide Pillar	Colonne de guidage		Z 04/...	DIN 16761-A
20	Kernhalteinsatz	Core retainer insert	Support de noyau	1	K 2531/...	1.2767
21	Backe	Split	Tiroir	2	K 2528/...	1.2767 / 1.2343 ESU
22	Druckplatte (Ersatzteil)	Wear plate (spare part)	Pl. de pression (pièce de rech.)		K 2526/...	1.2842/53 + 2 HRC
23	Aufspannplatte	Clamping plate	Plaque de fixation	1)	K 10/...; K 12/...	1.1730
24	Aufspannplatte	Clamping plate	Plaque de fixation	1)	K 11/...; K 13/...	1.1730
25	Zylinderschraube	SHC-screw	Vis à tête cylindrique	4	Z 31/... DIN EN ISO 4762	10.9
26	Zylinderschraube	SHC-screw	Vis à tête cylindrique	4	Z 31/... DIN EN ISO 4762	10.9
27	Sperrkantring	Locking edge washer	Rondelle à bords d'arrêt	8	Z 691/...	DIN 17221
28	Wärmeisolerplatte	Thermal insulating sheet	Plaque isolante	1)	Z 121/...; Z 1211/...; Z 1211/...	
29	Wärmeisolerplatte	Thermal insulating sheet	Plaque isolante	1)	Z 121/...; Z 1211/...	

1) Typ und Abmessung ist vom Konstrukteur festzulegen

1) Type and dimension is to be fixed by the designer

1) Le type et les cotes doivent être définis par le constructeur.

⚠ Beachten:

Die Kernhalteplatte, Pos. 3, muss je nach konstruktiver Ausführung mit Freisparungen für die Schrägsäulen Pos. 9 versehen werden.

⚠ Caution:

According to the design the backing plate, item 3 must be provided with clearance recesses for angle pins, item 9.

⚠ Remarque:

La plaque de noyau, pos. 3, doit présenter, selon le modèle construit, des orifices libres pour les doigts inclinés, pos. 9.



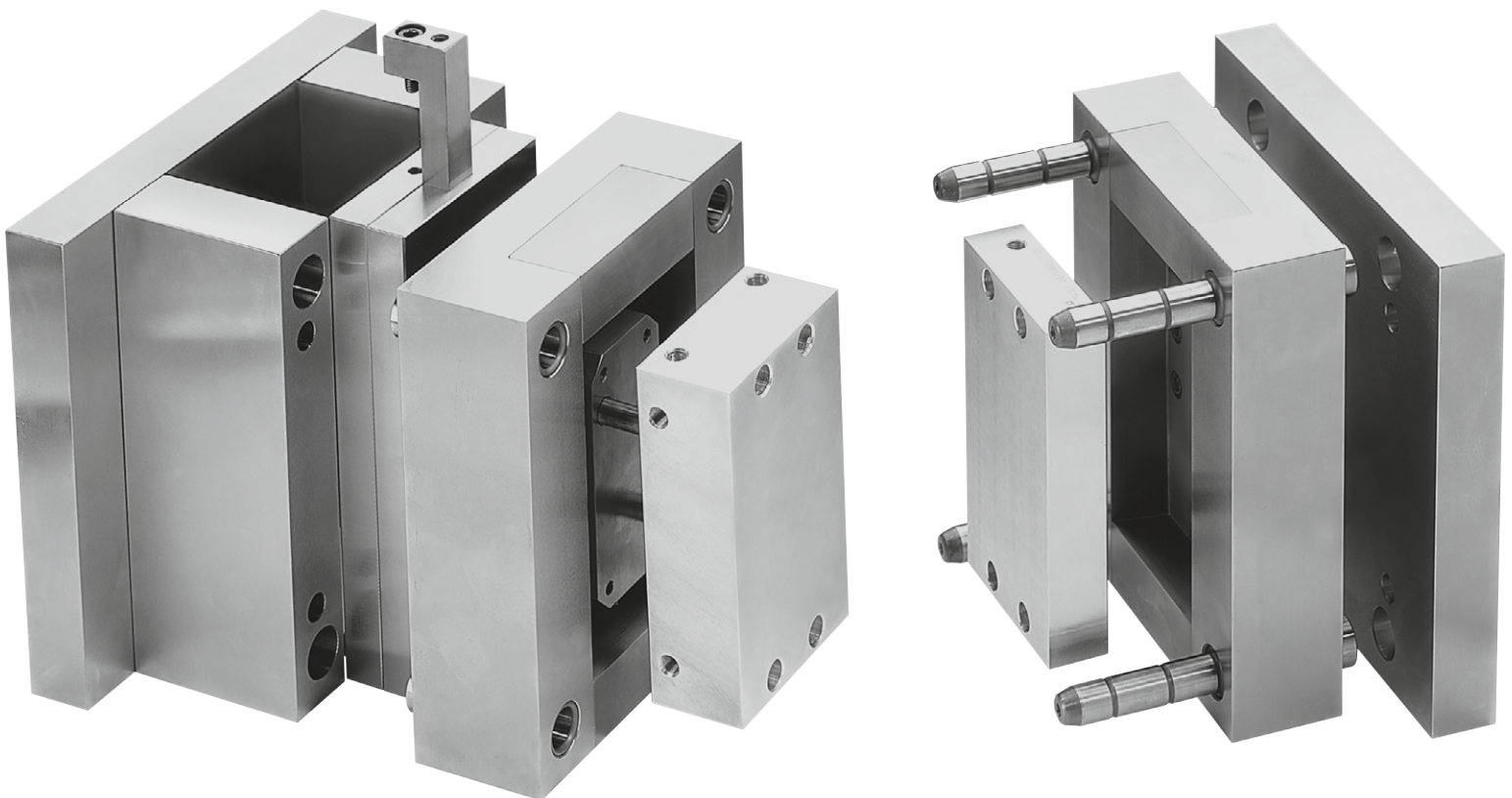
HASCO®

Ermöglichen mit System.

K 3500 /...

K 3501 /...

Wechselwerkzeug-System
Quick-change Mould System
Système de moule à
changement rapide





Das HASCO-Wechselwerkzeug-System K3500/... ist speziell für die kostengünstige Produktion praxisnaher Muster, Prototypen und Kleinserien entwickelt worden.

Es besteht aus dem Wechselwerkzeug K3500/... und den dazu passenden Formeinsätzen K3501/... und K3520/... . Gemäß dem HASCO Baukastenprinzip sind die Einsätze austauschbar.

The HASCO K3500/... quick-change Mould System has been especially developed for the economic production of samples, prototypes and small series.

It consists of the mould changing unit K3500/... and the matching mould inserts K3501/... and K3520/... . The inserts are exchangeable according to the HASCO modular system.

Le système de moule à changement rapide HASCO K3500/... a été développé spécialement pour une production à bas prix et basée sur la pratique d'échantillons, de prototypes et de petites séries.

Il se compose du moule de changement K3500/... et des inserts porte-empreintes K3501/... et K3520/... correspondantes. Grâce au principe modulaire HASCO, ces inserts sont interchangeables.

Besondere Merkmale

- Die Einsätze sind von der Trennebene aus verschraubt und in der Spritzgießmaschine auswechselbar.
- Minimale Stillstandzeiten durch schnelles Wechseln der Formeinsätze.
- Formplatten sind in den Materialien 1.2312 und 1.2085 erhältlich.
- 3 Werkzeuggrößen, kompatibel zum K-Programm
 - 156 x 196
 - 246 x 296
 - 296 x 396
- Die Einsätze mit integrierter Temperierung sind in den Materialien 1.2767 und 3.4365 erhältlich.
- Verbindung zwischen Formeinsatz K3501 und Wechselwerkzeug K3500 mittels Verriegelung.

Special Features

- The inserts are bolted through from the parting plane and can be exchanged in the injection moulding machine.
- Minimum downtimes due to fast changing of the mould inserts.
- Mould plates can be obtained in materials 1.2312 and 1.2085.
- 3 mould sizes, compatible with the K-range
 - 156 x 196
 - 246 x 296
 - 296 x 396
- The inserts with integrated cooling lines can be obtained in materials 1.2767 and 3.4365.
- Connection between mould insert K3501 and mould-changing unit K3500 is by means of a locking bar.

Caractéristiques particulières

- Les inserts sont vissés du niveau de séparation et interchangeables dans la presse d'injection.
- Durées d'immobilisation minimales grâce au changement rapide des inserts porte-empreintes.
- Plaques porte-empreintes sont disponibles dans les qualités 1.2312 et 1.2085.
- 3 grandeurs de moules, compatibles avec le programme K
 - 156 x 196
 - 246 x 296
 - 296 x 396
- Les inserts avec refroidissement intégrés sont disponibles dans les qualités 1.2767 et 3.4365.
- Liaison par verrouillage entre l'insert porte-empreinte K3501 et le moule de changement K3500.



Technische Informationen

Die Einsätze sind separat austauschbar und wie folgt zu bestellen:

K 3501/...

Formeinsatz mit Wechselauswerferei bewegliche Seite

K 3520/...

Formeinsatz feste Seite

Technical Information

The inserts can be exchanged separately and ordered as follows:

K 3501/...

Mould insert with changing ejector unit moving side

K 3520/...

Mould insert fixed side

Informations techniques

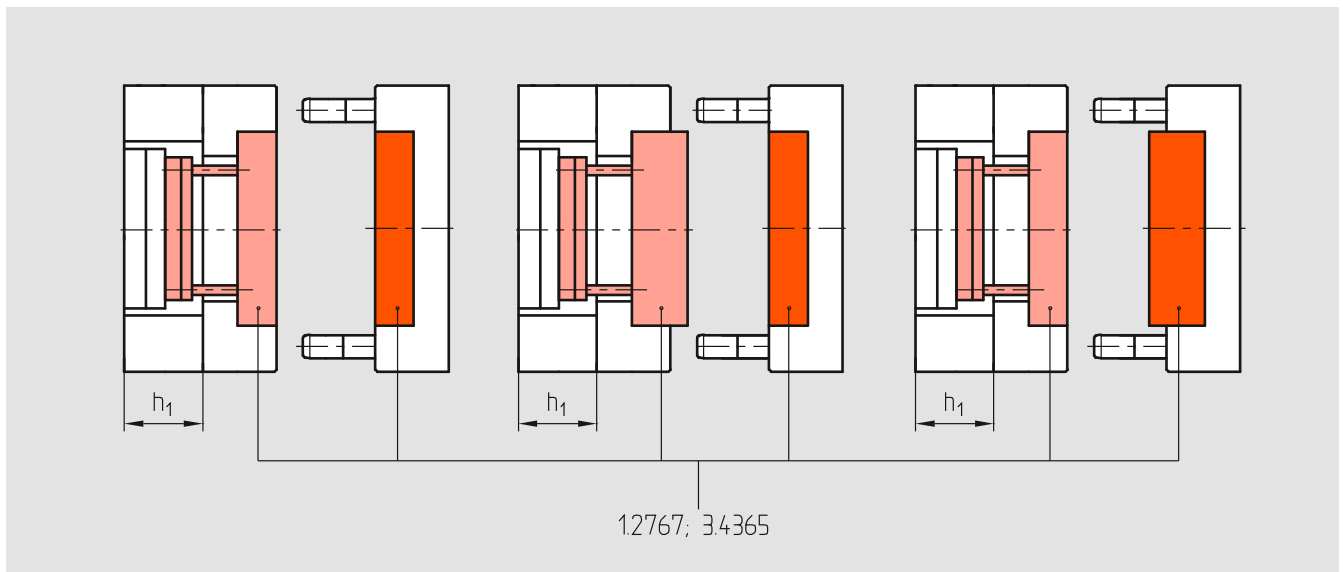
Les inserts sont interchangeables individuellement et peuvent être commandés sous les références suivantes:

K 3501/...

Insert porte-empreintes avec éjection de moule côté mobile

K 3520/...

Insert porte-empreintes côté fixe



Die Einsätze sind bündig oder überstehend zu der Rahmenformplatte. Sie sind untereinander kombinierbar. Die Einsätze werden mit Aufmaß geliefert.

Folgende Leisten K 40/... werden für das Wechselwerkzeug K 3500/... benötigt:

K 40/156 196/76/...
K 40/246 296/76/...
K 40/296 396/96/...

Die Leistenhöhe h_1 muss unbedingt eingehalten werden.

The inserts are flush with or they project beyond the bolster plate. They can be combined with one another. The inserts are delivered with machining allowance.

The following risers K 40/... are required for the K 3500/... mould-changing unit:

K 40/156 196/76/...
K 40/246 296/76/...
K 40/296 396/96/...

It is absolutely necessary to maintain the riser height h_1 .

Les inserts sont placés à fleur ou en saillie par rapport à la plaque porte-empreintes du châssis. Ils peuvent être combinés et sont livrés avec surépaisseur.

Les tasseaux K 40/... suivantes sont requises pour le moule de changement K 3500/...:

K 40/156 196/76/...
K 40/246 296/76/...
K 40/296 396/96/...

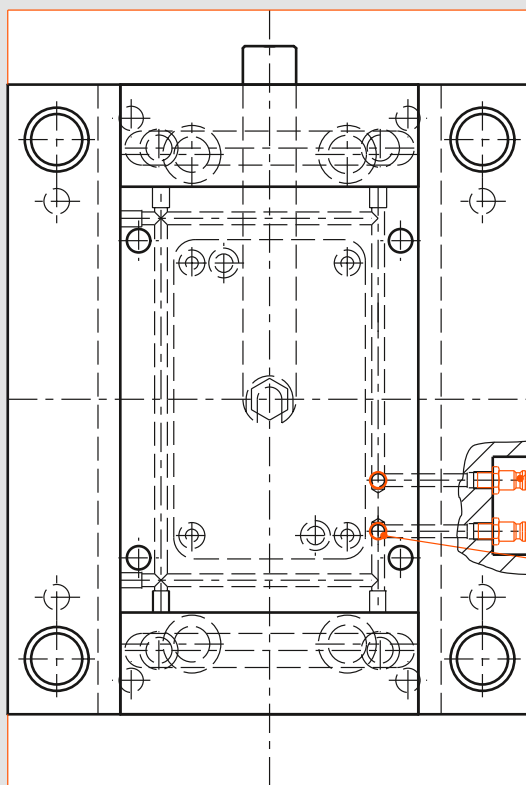
L'épaisseur de tasseaux h_1 doit être impérativement respectée.





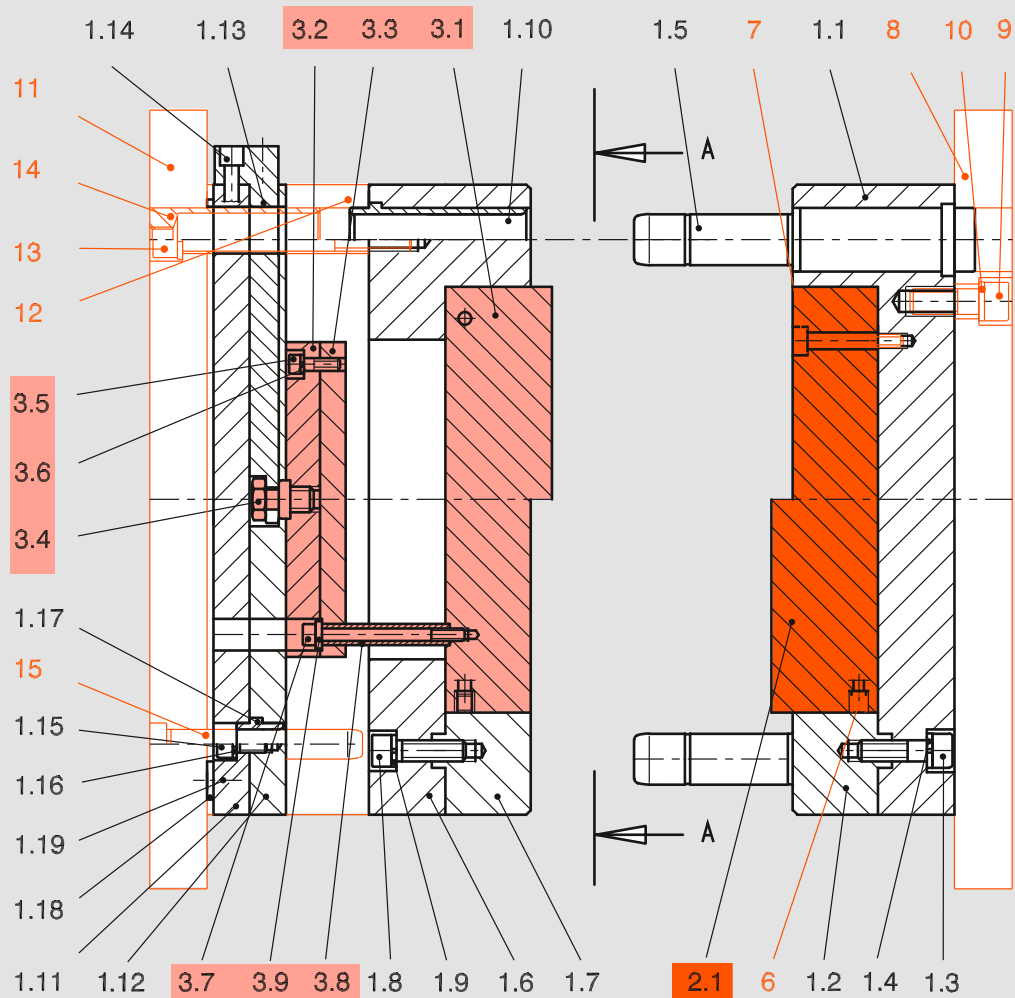
K 3500 – Mould changing system

A - A



4

5



K 3500 – Mould changing system

Wechselwerkzeug K 3500/...

Mould-changing system K 3500/...

Moule de changement K 3500/...

Pos.	Benennung	Designation	Désignation	St./Pc.	Nr./No.
1.1	Rahmenformplatte	Bolster plate	Plaque porte-empreinte avec logement	1	
1.2	Endstück	End piece	Verrou de fermeture	2	KR201/...
1.3	Zylinderschraube	Hexagon socket head cap screw	Vis à tête cylindrique à 6 pans creux	4	Z31/...
1.4	Sperrkantring	Locking edge washer	Rondelle à bords d'arrêt	4	Z691/...
1.5	Führungssäule	Guide pillar	Colonne de guidage	4	Z00/...
1.6	Rahmenformplatte	Bolster plate	Plaque porte-empreinte avec logement	1	
1.7	Endstück	End piece	Verrou de fermeture	2	KR201/...
1.8	Zylinderschraube	Hexagon socket head cap screw	Vis à tête cylindrique à 6 pans creux	4	Z31/...
1.9	Sperrkantring	Locking edge washer	Rondelle à bords d'arrêt	4	Z691/...
1.10	Führungsbuchse	Guide bush	Bague de guidage	4	Z10/...
1.11	Auswerfergrundplatte	Ejector base plate	Contre plaque d'éjection	1	
1.12	Auswerferhalteplatte	Ejector retainer plate	Plaque d'éjection	1	
1.13	Verriegelung	Locking bar	Verrou	1	
1.14	Zylinderschraube	Hexagon socket head cap screw	Vis à tête cylindrique à 6 pans creux	1	Z31/...
1.15	Zylinderschraube	Hexagon socket head cap screw	Vis à tête cylindrique à 6 pans creux	4	Z31/...
1.16	Sperrkantring	Locking edge washer	Rondelle à bords d'arrêt	4	Z691/...
1.17	Führungsbuchse	Guide bush	Bague de guidage	2/4	Z13W /17/...
1.18	Auflagescheibe	Seating washer	Rondelle de butée	4	Z55/18x3
1.19	Senkschraube	Countersunk screw	Vis à tête fraisée	4	Z33/4x8

Formeinsatz (feste Seite) K 3520/...

Mould insert (fixed side) K 3520/...

Insert porte-empreintes (côté fixe) K 3520/...

Pos.	Benennung	Designation	Désignation	St./Pc.	Nr./No.
2.1	Formeinsatz	Cavity insert	Plaque dévêtisseuse	1	K3520/...

Formeinsatz (bewegliche Seite) K 3501/...

Mould insert (moving side) K 3501/...

Insert porte-empreintes (côté mobile) K 3501/...

Pos.	Benennung	Designation	Désignation	St./Pc.	Nr./No.
3.1	Formeinsatz	Cavity insert	Plaque dévêtisseuse	1	
3.2	Auswerfergrundplatte für K3501	Ejector base plate for K3501	Contre plaque d'éjection pour K3501	1	
3.3	Auswerferhalteplatte für K3501	Ejector retainer plate for K3501	Plaque d'éjection pour K3501	1	
3.4	Verriegelungsschraube	Locking screw	Vis de verrouillage	1	
3.5	Zylinderschraube	Hexagon socket head cap screw	Vis à tête cylindrique à 6 pans creux	4	Z31/...
3.6	Sperrkantring	Locking edge washer	Rondelle à bords d'arrêt	4	Z691/...
3.7	Zylinderschraube	SHC screw	Vis à tête cylindrique	2	Z31/...
3.8	Führungshülse	Guide sleeve	Douille de guidage	2	Z022/10/...
3.9	Scheibe	Disc	Rondelle	2	Z561/14x3

Sonstige K + Z Teile, extra Bestellung erforderlich!

Miscellaneous K + Z parts, extra ordering required!

Autres pièces Z + K, commande séparée obligatoire!

Pos.	Benennung	Designation	Désignation	St./Pc.	Nr./No.
4	Anschlussnippel	Nipple	Raccord de préférence	4	Z81/9/10x1
5	Viton O-Ring	Viton O-ring	Joint torique Viton	4	Z98/7,5/1,5
6	Verschlusschraube	Hexagon socket pipe plug	Bouchon fileté à 6 pans creux	12	Z94/8x0,75
7	Zylinderschraube	Hexagon socket head cap screw	Vis à tête cylindrique à 6 pans creux	8	Z31/...*
8	Aufspannplatte	Clamping plate	Plaque de fixation	1	K10/...*
9	Zylinderschraube	Hexagon socket head cap screw	Vis à tête cylindrique à 6 pans creux	4	Z31/...*
10	Sperrkantring	Locking edge washer	Rondelle à bords d'arrêt	8	Z691/...*
11	Aufspannplatte	Clamping plate	Plaque de fixation	1	K10/...*
12	Leiste	Riser	Tasseaux	2	K40/...
13	Zylinderschraube	SHC screw	Vis à tête cylindrique	4	Z31/...*
14	Zentrierhülse	Centering sleeve	Douille de centrage	4	Z20/...*
15	Führungssäule	Guide pillar	Colonne de guidage	4	Z01/14x...*

* Typ und Abmessung ist vom Konstrukteur festzulegen.

* Type and dimension is to be determined by the designer.

* Le type et les dimensions doivent être déterminés par le concepteur.



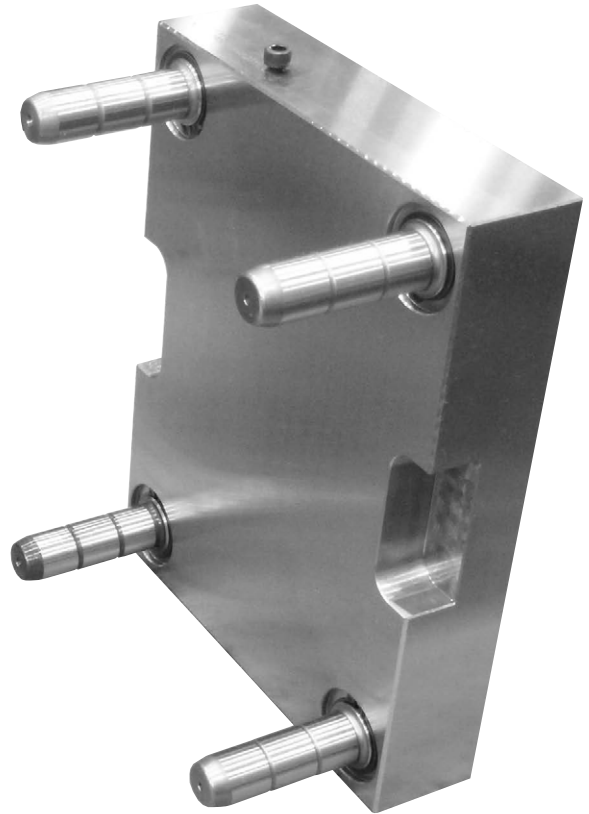
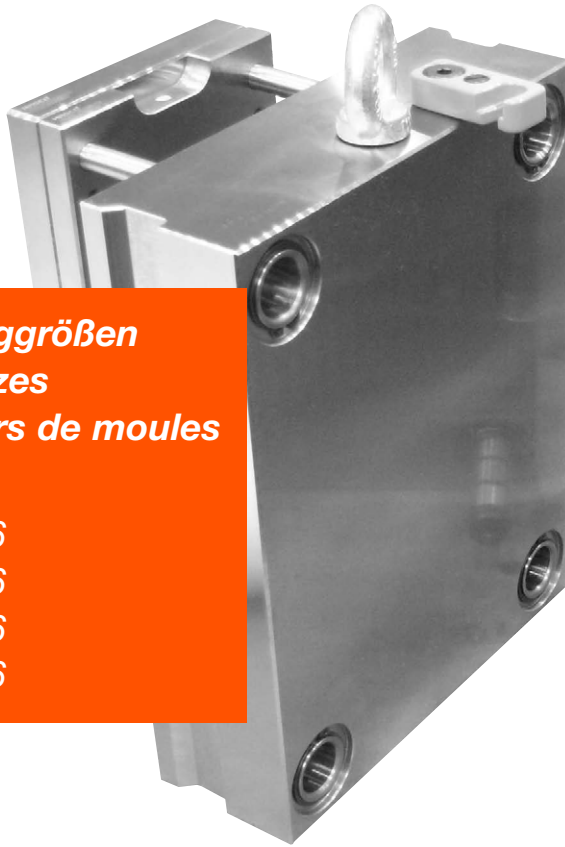
HASCO®

Ermöglichen mit System.

K 3600 /...

*Kleinserienwerkzeug
Small series mould
Moule pour petites séries*





Werkzeuggrößen Mould sizes Grandeurs de moules

156 x 156
190 x 246
246 x 296
296 x 396

Das HASCO Kleinserienwerkzeug K3600/... ist speziell für die kostengünstige Produktion praxisnaher Kleinserien entwickelt worden.

Es handelt sich hier um ein speziell auf das neue Clever Mold System abgestimmtes Wechsel-Werkzeug, welches effizientes und schnelles Werkzeugwechseln auf allen gängigen Spritzgießmaschinen zulässt.

Das Clever Mold System in Verbindung mit dem Kleinserienwerkzeug K3600/... reduziert sowohl die Rüstzeiten, als auch die Werkzeugkosten.

Besondere Merkmale

- Einfaches Wechseln der kompletten Baugruppe auf der Spritzgießmaschine möglich.
- Keine Reduzierung der nutzbaren Plattenfläche durch Einsetzen vordefinierter Auswerferpakete (im Vergleich zu allen herkömmlichen Systemen).
- Minimale Maschinenstillstandzeiten durch schnelles Wechseln des Werkzeugs.
- Formplatten sind in den Materialien 1.2767 und Toolox 33 erhältlich.
- Reduzierung von Werkzeugkosten.
- Praxiserprobt
- 4 Werkzeuggrößen, kompatibel zum K-Programm

The HASCO small series mould K3600/... has been specially developed for the cost-effective production of practical small production runs.

This is an interchangeable mould specially adapted to the new Clever Mold System, which enables the mould to be changed quickly and efficiently on all current injection moulding systems.

The Clever Mold System in conjunction with the small series tool K3600/... reduces both the set-up times and the costs of the tool.

Special Features

- Simple changing of the complete module assembly is possible on the injection moulding system.
- No reduction of the usable plate surface by using predefined ejector assemblies (compared with all conventional systems).
- Minimum machine downtimes due to fast changing of the mould.
- Mould plates can be obtained in materials 1.2767 and Toolox 33.
- Reduced tool costs.
- Field-tested
- 4 mould sizes, compatible with the K-range

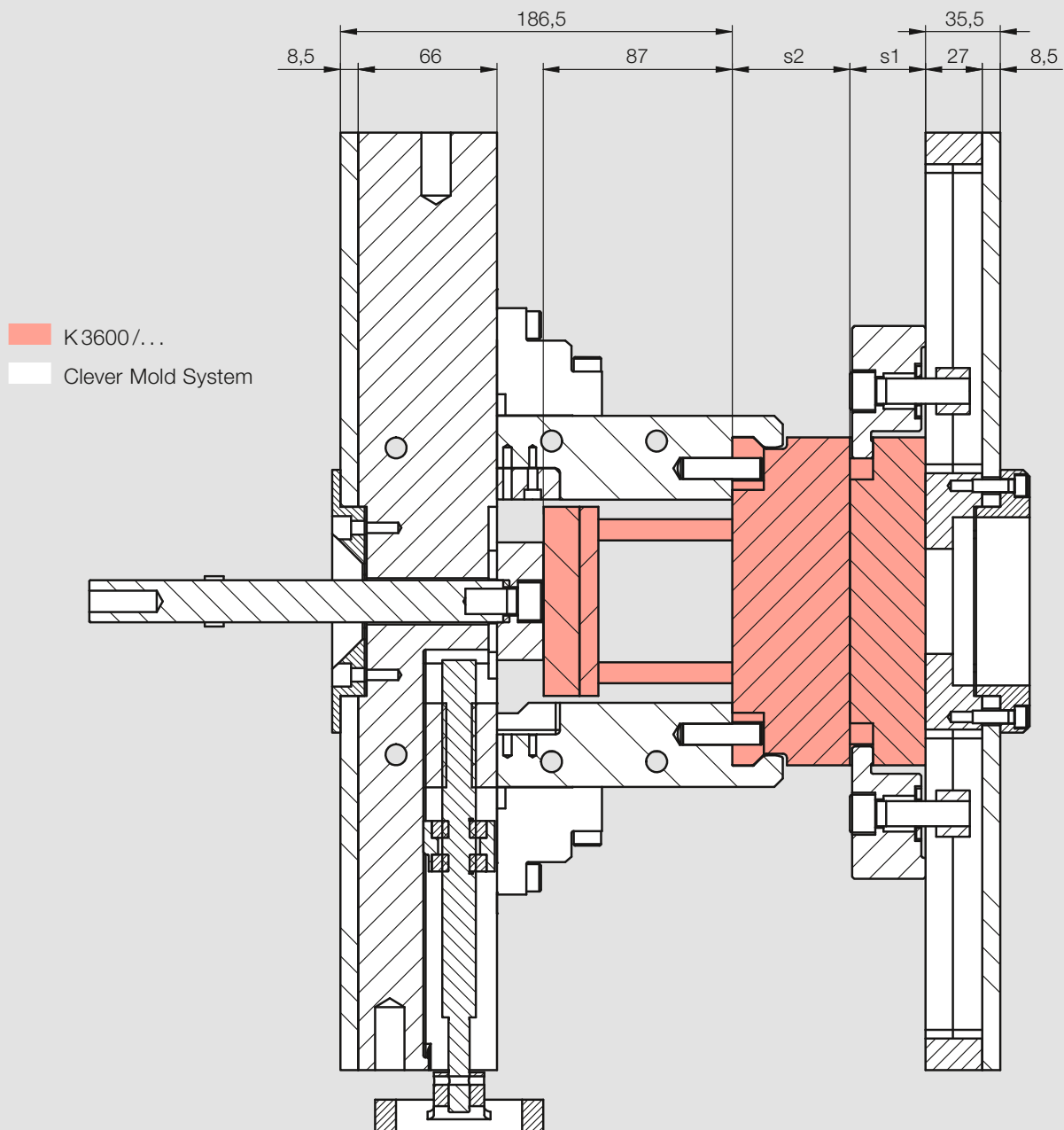
Le moule pour petites séries HASCO K3600/... a été spécialement développé pour la production à moindre coût de petites séries proches de la pratique.

Il s'agit d'un moule interchangeable spécialement adapté au nouveau Clever Mold System et permettant un changement de moule efficace et rapide sur toutes les presses de moulage par injection courantes.

Le Clever Mold System, en combinaison avec le moule pour petites séries K3600/..., réduit les temps d'installation et les frais d'outillage.

Caractéristiques particulières

- Possibilité de changer facilement le module complet sur la presse de moulage par injection.
- Aucune réduction de la surface utile de plaque grâce à l'utilisation de batteries d'éjection prédéfinies (par rapport à tous les systèmes classiques).
- Durées d'immobilisation minimales grâce au changement rapide des moules.
- Plaques porte-empreintes sont disponibles dans les qualités 1.2767 et Toolox 33.
- Frais d'outillage réduit.
- Éprouvé dans la pratique
- 4 grandeurs de moules, compatibles avec le programme K



Einbaumaße

K 3600/... Einbau

Im geöffnetem Zustand wird mit Hilfe des Handrades das komplette HASCO Kleinserienwerkzeug K 3600/... über die Spannbacke des Clever Mold Systems in der Auswerferseite montiert.

Das Auswerferpaket wird über zwei Spannpratzen auf der Spannleiste befestigt.

Anschließend fährt die Maschine zusammen damit die Formplatte (FS) befestigt werden kann.

Mounting dimensions

K 3600/... Assembly

When open, the complete HASCO quick interchangeable mould system K 3600/... is installed on the ejector side with the clamping jaw of the Clever Mold System using the hand wheel.

The ejector assembly is fastened to the clamping bar via two clamping shoes.

Then the machine starts so that the fixed mould plate can be fastened.

Dimensions de montage

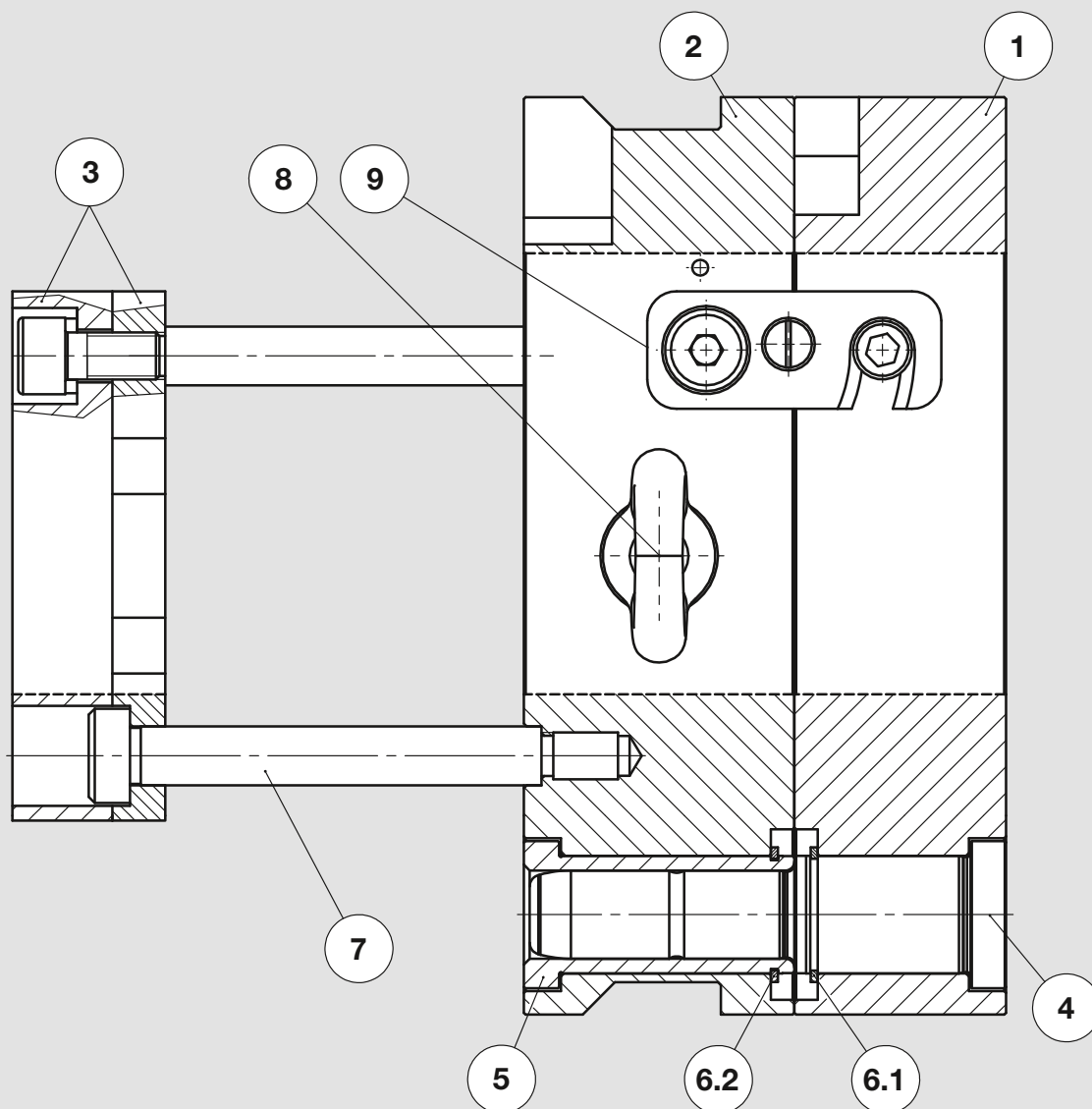
K 3600/... Montage

En état ouvert, le système complet de moules à changement rapide K 3600/... est monté du côté de l'éjecteur par le biais de la mâchoire de serrage du Système Clever Mold à l'aide du volant à main.

La batterie d'éjection est fixée sur la barre de serrage par le biais de deux griffes de serrage.

Ensuite, la presse est resserrée afin que la plaque porte-empreinte fixe puisse être attachée.





Stückliste

Parts list

Liste de pièces

Pos.	Benennung	Designation	Désignation	St./PC.	Nr./No.
1	Formplatte (FS)	Fixed mould plate	Plaque porte-empreinte fixe	1	K3620/...:
2	Formplatte (BS)	Moving mould plate	Plaque porte-empreinte mobile	1	K3621/...
3	Auswerferpaket	Ejector assembly	Batterie d'éjection	1	K3660/3670/...
4	Führungssäule	Guide pillar	Colonne de guidage	4	Z032/...
5	Führungsbuchse	Guide bush	Bague de guidage	4	Z1101/...
6.1	Sicherungsring	External circlip	Circlip	4	Z67/...
6.2	Sicherungsring	External circlip	Circlip	4	Z67/...
7	Schulterschraube	Shoulder screw	Vis à tête cylindrique épaulée	4	Z38/10x70
8	Ringschraube	Lifting eye bolt	Anneau de levage	1	Z710/...
9	Werkzeugsicherung	Tool safety device	Sécutité d'outillage	1	Z73/...

Please provide us with all the data / drawings / data sheets and background information. This helps us in checking the application and in selecting the components, which are ultimately to ensure reliable operation.

 Please note that supplying a completely filled-in enquiry sheet or the data referred to will greatly speed up the processing of your enquiry.

Customer Information

company:*		customer-No.:	
contact person:*		country:*	
address:*		phone:*	
city:*		fax:	
post code:*		email:*	

interested in:	☐ H 4000/...	☐ H 4010/.../S	☐ H 4016/.../S	☐ H 4400/.../S
	☐ H 4070/.../S	☐ H 4170/.../S	☐ H 2010/.../S	☐ H 4470/.../S
	☐ H 4075/.../S	☐ H 4175/.../S	☐ H 2020/.../S	☐

Article Information

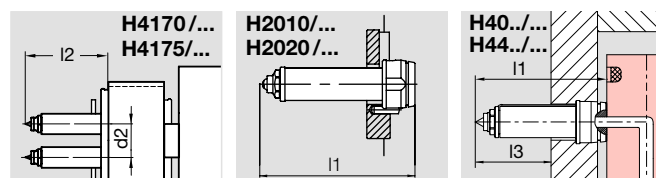
article name:*			
article weight:*		g	article drawing:*
weight of subrunner:		g	☐ enclosed
max. flow length:		mm	☐ will be send via email
wallthickness:	min.	mm	☐ not available
		max.	mm

Plastic Material / Resin Information

plastic material:*		trade name:	
supplier:		processing temp.:	°C
glasfibre:	%	mould temp.:	°C
mineral fillers:	%	data sheet:*	☐ enclosed
flame retardent:	☐ yes ☐ no		☐ will be send via email
other:	%		☐ not available

Nozzle Parameter

no. of nozzles:*		nozzle length l1:*	
no. of cavities:*		nozzle length l2:*	
nozzle type:		nozzle projection l3:*	
gate section:	Ø length	pitch circle d2:	
gating:*	☐ direct ☐ indirect		
needle valve:	☐ hydraulic ☐ air		
	☐ elektrical		
cascade control:	☐ yes ☐ no		





Please draw a sketch of the nozzle positions with dimensions if the designation of **X** and **Y** is not adequate or clear.

Mould Data

mould size: width:* mm
length:* mm
max. height: mm

plate material: ☐ 1.2312
☐ 1.2085
☐ 1.2099

insulating plate: ☐ yes ☐ no

nozzle coordinates:*

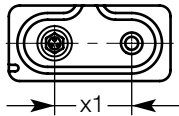
x1 y1
x2

radius of
spruebush:*

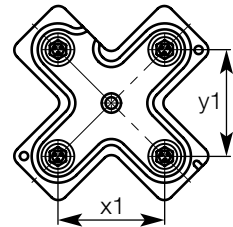
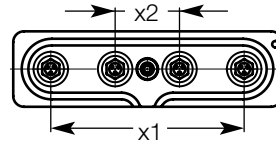
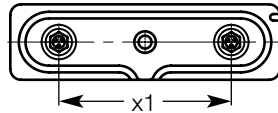
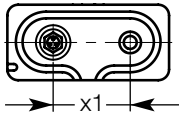
☐ R0
☐ R15,5
☐ R40
☐ R=

Direction of heating tap

☐ Type 1
(standard)



☐ Type 2



Control Engineering

existent: ☐ yes ☐ no

please quote: ☐ yes ☐ no

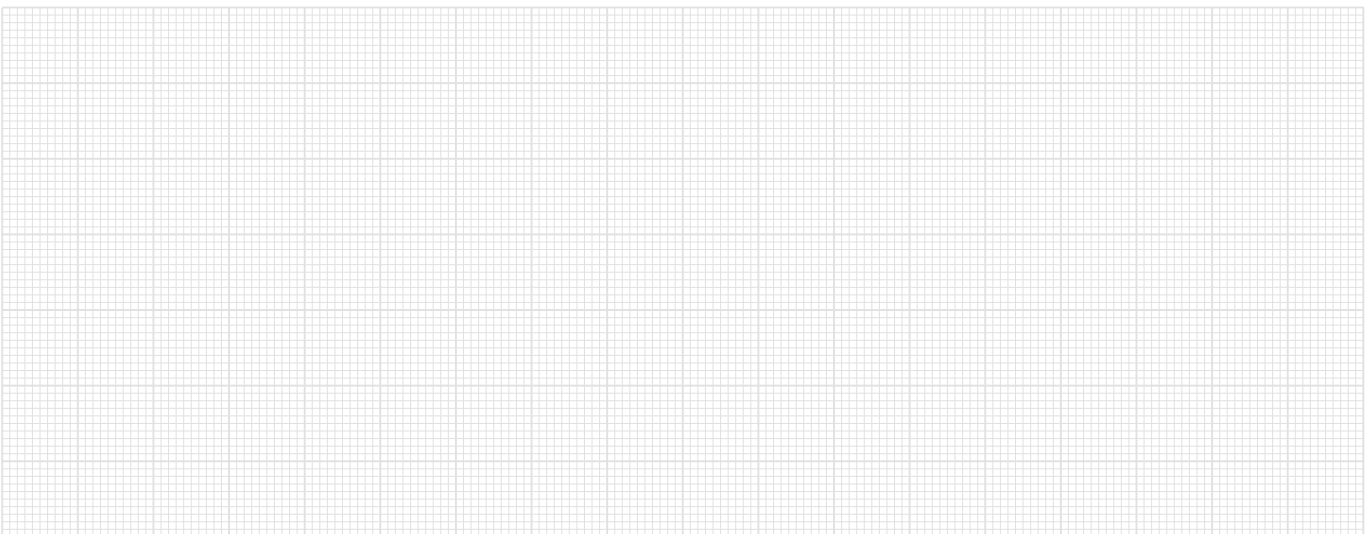
HASCO-name:

third-party product name:

manufacturer:

wiring: ☐ HASCO ☐ load-/ thermocouple seperated ☐

Sketch of Nozzle Positions



comment:

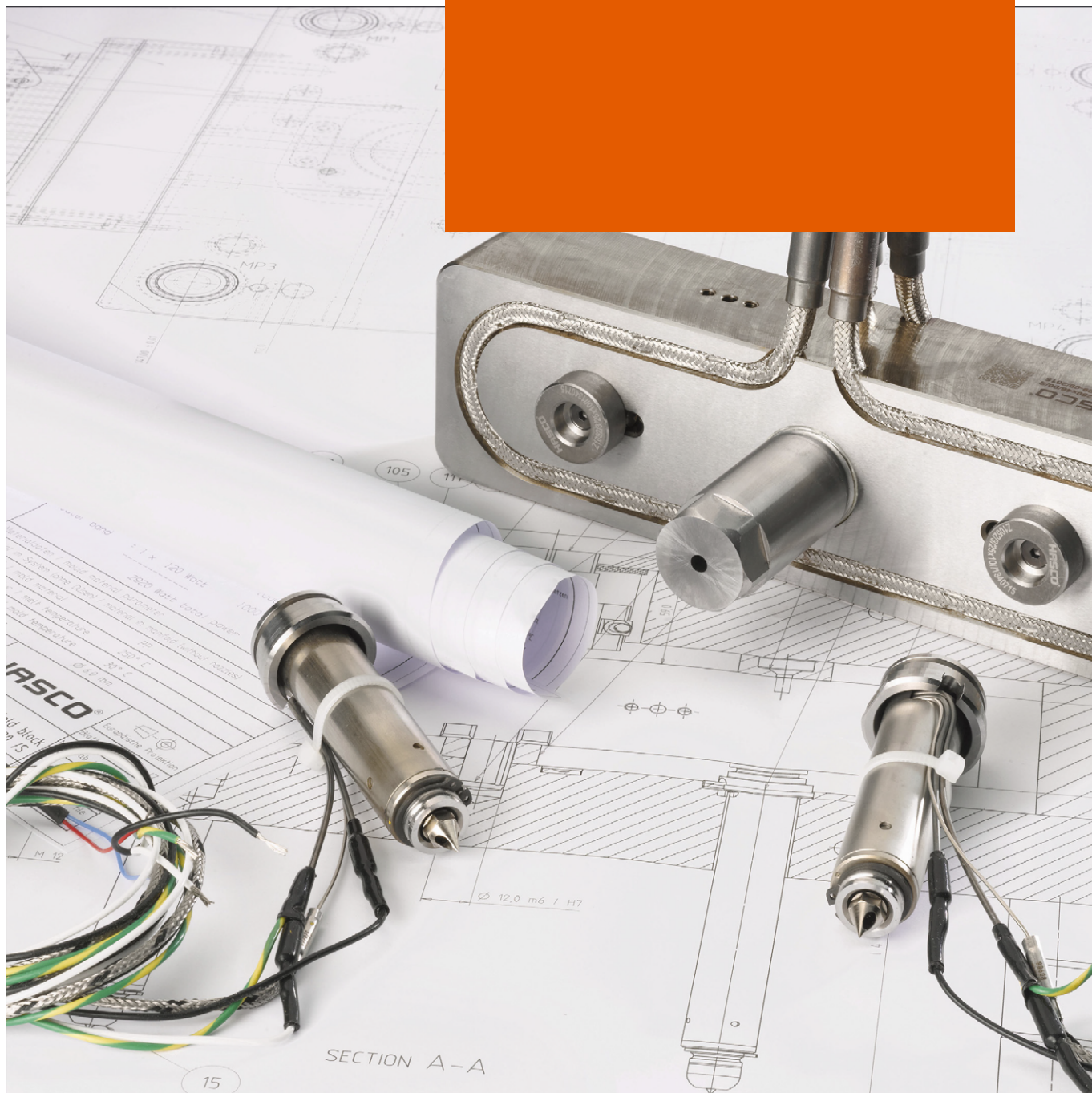
date:

signature:

HASCO[®]

Enabling with System.

**A guide to
designing
hot runner
moulds**



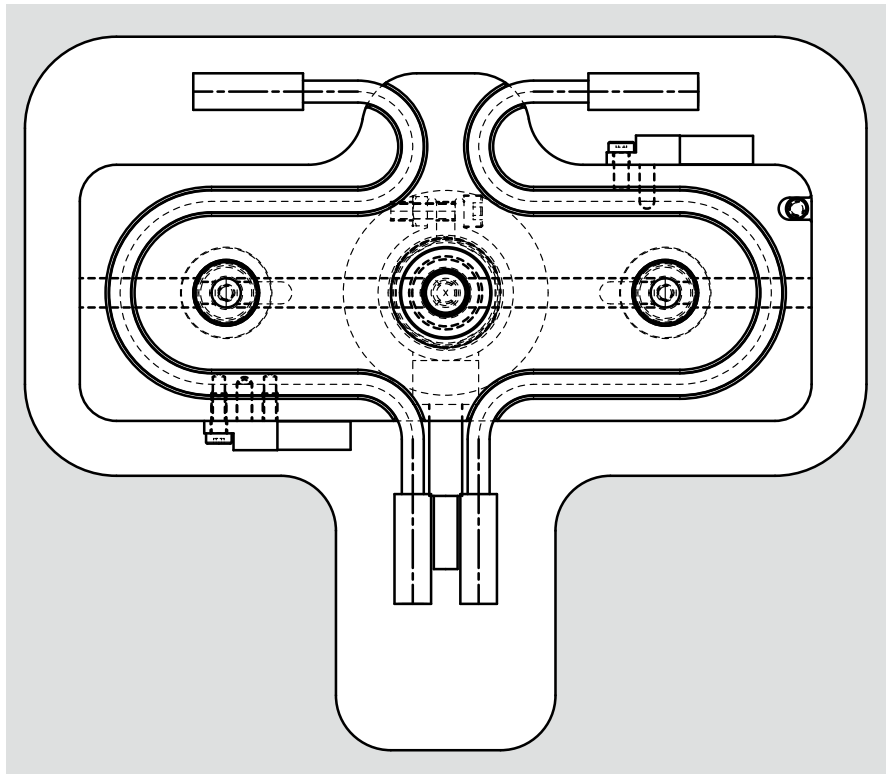


1. Installation space

The installation space required for the hot runner manifold is determined by the size of the hot runner manifold and the insulation gap around it.

The air gap serves as insulation and should be 15 mm wide.

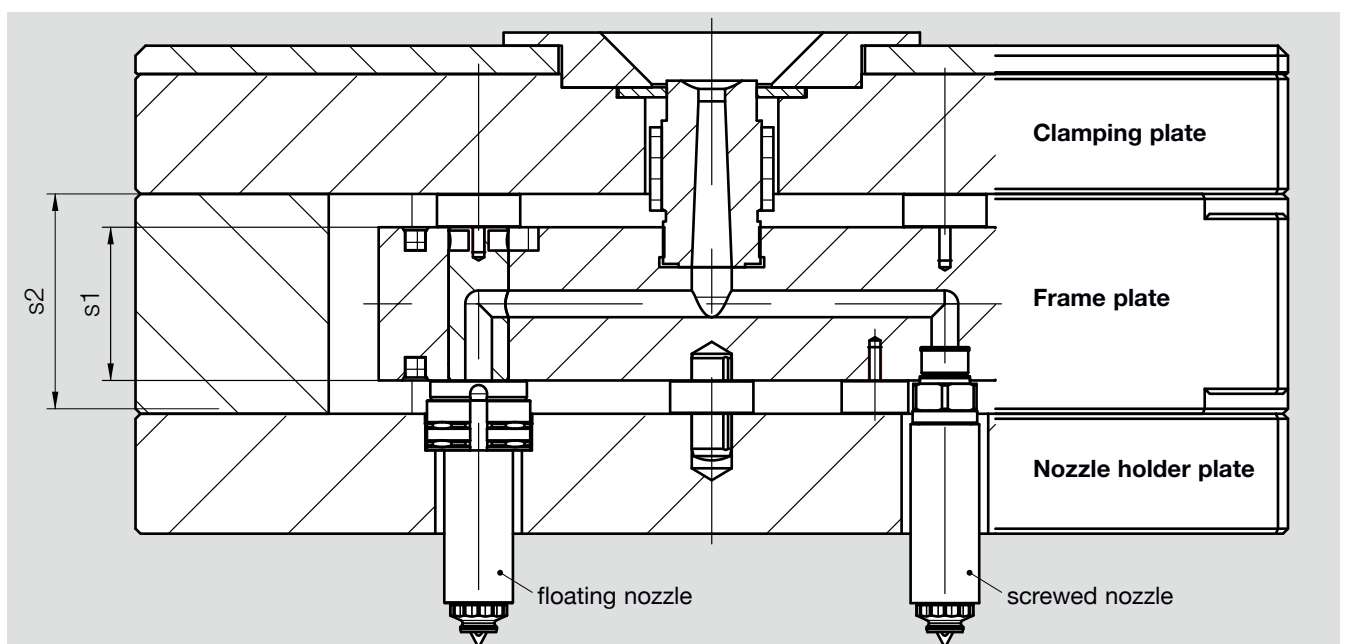
The manifold must also be installed in a space that is enclosed all round.



2. Pre-tensioning for hot runner system

The seal between the nozzle and the manifold is achieved through the contact pressure generated by the thermal expansion of the manifold block.

The installation height is obtained from the height of the hot runner manifold and the spacer discs screwed on to it. The spacer discs are used to create the insulation gap. The standard gap height is 10 mm each side, or 5 mm each side. When coordinating the installation height, attention must be paid to the thermal expansion calculation.





Cont. „2. Pre-tensioning for hot runner system“

To obtain a sufficient pre-tensioning force, the height of the installation space s_2 must be aligned accordingly.

The tolerance for dimension s_2 is a function of the height of the manifold block s_1 and the temperature difference Δt between the manifold block and the injection mould. The value can be obtained from the following table.

Pre-tensioning the hot runner system

Block thickness [mm]	Temperature difference ΔT [°C]				
	100	150	200	250	300
	Change compared with nominal dimension of frame plate				
36	-0,04	-0,02	0,00	0,03	0,05
46	-0,03	0,00	0,03	0,06	0,09
56	-0,02	0,02	0,05	0,09	0,12

Aim: Pre-tensioning during operation 0,08 mm $\pm$ 0,01

Nominal dimension frame plate = Block thickness + spacing

Pre-tensioning of screw-on hot runner systems (for installation only)

Block thickness [mm]	Temperature difference ΔT [°C]				
	100	150	200	250	300
	Change compared with nominal dimension of frame plate				
36	0,00	0,02	0,04	0,07	0,09
46	0,01	0,04	0,07	0,10	0,13
56	0,02	0,06	0,09	0,13	0,16

Aim: Pre-tensioning during operation 0,04 mm $\pm$ 0,01

Nominal dimension frame plate = Block thickness + spacing

The values given are guide values. Special cases require adjustments.
In such cases, the values must be determined by the application engineer.

3. Linear expansion of the nozzles

Example: A nozzle H 6130/25x56 has a length of 56.09 mm when cold

The installation space and the nozzle data are then determined as follows:

First it must be considered where the tip should be positioned in the heated state.

(Boundary conditions: $\Delta T = 200$ K (melt temperature - mould temperature)

Coefficient of thermal expansion for steel: 0,000012 / K

The nozzle tip should be at the same height as (flush with) the gate:

The actual cold dimension is included in the calculation and the linear expansion added to it.

$$56.09 \text{ mm} + (56.09 \text{ mm} \times 0,000012 / \text{K} \times 200 \text{ K}) = 56.22 \text{ mm}$$

The nozzle tip should extend 0.1 mm into the article:

The actual cold dimension is included in the calculation and the (linear expansion - 0.1 mm) is added to this.

$$56.09 \text{ mm} + ((56.09 \text{ mm} \times 0.000012 / \text{K} \times 200 \text{ K}) - 0.1 \text{ mm}) = 56.12 \text{ mm}$$

▶ Since the nozzle will still expand to 56.22, the tip will be 0.1 mm in the article when hot.

The nozzle tip should stop 0.1 mm short of the article:

The actual cold dimension is included in the calculation and the (linear expansion + 0.1 mm) is added to this.

$$56.09 \text{ mm} + ((56.09 \text{ mm} \times 0.000012 / \text{K} \times 200 \text{ K}) + 0.1 \text{ mm}) = 56.32 \text{ mm}$$

▶ Since the nozzle will still expand to 56.22, the tip will stop 0.1 mm short of the article when hot.



4. Screw-on hot runner systems

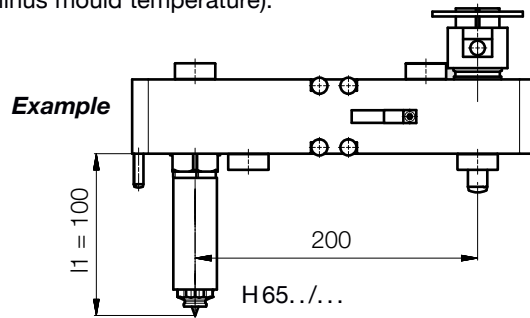
Minimum nozzle length l_1 in relation to the centre-to-centre spacing (x/y) of the hot runner manifold

Due to the firmly screwed-in nozzle in the hot runner manifold, a bending moment is created on the nozzle axis, which results from the linear expansion of the hot runner manifold during heating. The bending moment is a function of the centre-to-centre spacing of the nozzle. (Centre-to-centre spacing = direct distance from the centring e.g.: sprue bush to nozzle)

The bending moment is a function of ΔT (melt temperature minus mould temperature).
 ΔT is taken to be 200°C.

General guide value

$$\text{Nozzle length } l_1 \text{ min} = \frac{\text{Centre-to-centre spacing (x/y)}}{2}$$



5. Mould layout

5.1. Mould size

When selecting the mould size, it is important to ensure that, in addition to the hot runner system and the installation space, sufficient space is also available for the cable ducts that are required for the nozzles and the block heating units. Allowance must also be made for the space required for connection plugs. It is thus recommended that the mould be dimensioned generously, otherwise this can lead to space problems.

5.2. Plates for system installation

HASCO recommends using three plates for the installation of the hot runner system:

- Clamping plate ■ Frame plate ■ Nozzle holder plate

This configuration has the advantage of allowing maintenance work to be readily carried out.

5.3. Plate material

In view of the pre-tensioning required to seal the system, very high compressive forces result in the region of the spacer discs.

To maintain the pre-tensioning on a sustainable basis, it is necessary to use prehardened tool steels with a strength of at least 900N/mm² for the plate.

HASCO recommends the following steels, as a function of the requirements:

- 1.2312 ■ Toolox 33 ■ 1.2085 ■ 1.2099

5.4. Temperature control

In order to achieve a homogeneous temperature pattern and a high process reliability, adequate temperature control of the mould must be assured. The temperature of the plates that come into contact with the hot runner manifold should be controlled by a separate temperature control circuit. The mould temperature plays a key role in regulating the pre-tensioning, since a defined temperature difference is required between the hot runner manifold and the mould for this.

In order to prevent any heat from being dissipated via the machine clamping plate, the use of a thermal insulating sheet (Z 121/...) is recommended.

HASCO takes into account the mould temperature data supplied by the plastics manufacturers when configuring the hot runner system. If these temperatures cannot be observed, trouble-free functioning of the hot runner system is not guaranteed.



6. Mould stability

6.1. Screw connections

High forces are introduced into the mould on account of the pre-tensioning that has to be generated in order to seal the system. To prevent any deflection of the plates, further screw connections are required in addition to the 4 system screw connections on the mould. To obtain sufficient mould stability, we recommend employing at least one additional screw connection for each nozzle that is used. With large mould sizes, even more screw connections might be necessary.

6.2. Plate thickness

To ensure that the clamping plate is strong enough, the minimum plate thicknesses set out in the table below should be used for the mould sizes in question.

Minimum plate thickness for the clamping plate when using hot runner manifold blocks

b \ l	095	130	156	196	246	296	346	396	446	496	546	596	646	696	796	896	996
095	22																
100		22															
156			27	27	27	27	27										
190					27												
196				27		36	36	36	36	36							
218					27	36											
246					36	36	36	36	36	36	36	36					
296						36	36	36	36	36	36	36	36	36			
346							36	46	46	46	46	46	46	46	56		
396								46	46	46	46	46	56	56	56	56	
446									46	46	46	46	56	56	56	56	
496										56	56	56	56	56	56	56	56
546											56	56	56	56	56	56	56
596												56	56	56	56	56	56
646													56	56	56	56	56
696														76	76	76	76
746															76	76	76
796																76	76

With valve gate systems, the plate thickness must be adapted accordingly (see Section 7 *Layout with valve gate technology*).

The height of the frame plate is determined by the height of the hot runner manifold. When coordinating this, allowance must be made for the pre-tensioning (see Section 2 *Pre-tensioning for hot runner system*).

If a nozzle holder plate is used, operators may determine the height themselves. The following points must, however, be borne in mind:

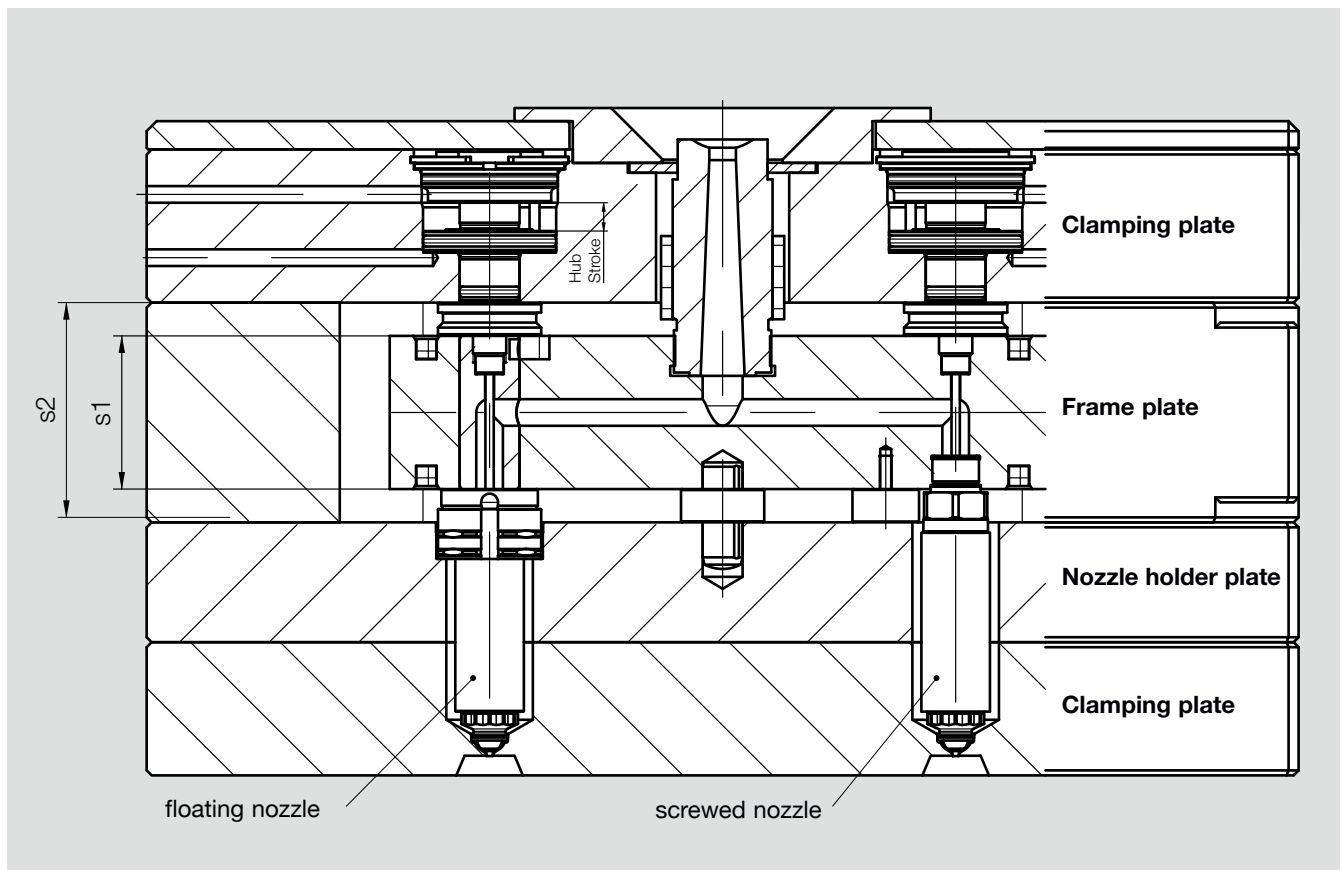
- the countersunk nozzle head
- the inclusion of cable ducts
- the cooling channels
- the rigidity of the nozzle holder plate



7. Layout with valve gate technology

When using valve gate systems, the clamping plate should be aligned on the basis of the needle actuation height. The installation dimensions and the requisite minimum plate thicknesses are set out in the individual product brochures for the valve gate solution.

The needle and gate geometry should be aligned to the application case in question. We would ask you to consult the HASCO application engineers on this.



8. Contact

If you have any questions, the HASCO Application Technology Department will be pleased to help you.

HASCO Hasenclever GmbH + Co KG
Römerweg 4, D-58513 Lüdenscheid
T +49 2351 957-333
technic@hasco.com, www.hasco.com

HASCO Austria GmbH
Industriestraße 21, AT-2353 Guntramsdorf
T +43 2236 202-500
awt.at@hasco.com, www.hasco.com

Bestellformular

Order form

Formulaire de commande

Firma/Company/Société: _____

Zuständig/Contact/Responsable: _____

Tel.: _____ Fax: _____

E-mail: _____ Datum/Date: _____

☐ Bestellung/Order/Commande Nr./No.: _____ ☐ Anfrage/Quotation/Demande

Z442/.../S

Auswerferstift, zylindrischer Kopf, abgesetzt
Shouldered ejector pin, cylindrical head
Ejecteur à tête cylindrique, épaulé

Mat.: WS* (≈ 1.2516) / 60⁺⁴₋₂ HRC ☐

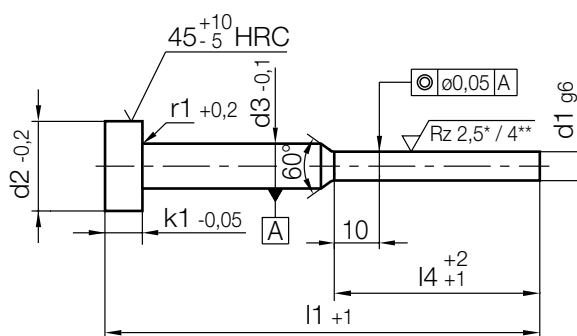
mit DLC Beschichtung ☐

with DLC coating

avec revêtement DLC

Mat.: WAS** (≈ 1.2343) ≥ 950 HV0,3 ☐

Mat.:



Stck./Pc.	Typ	d3	l1	d1	l4	S	l1	d1	l4	d2	k1	r1
	Z442	/ 1,6 x	/	x	/ S	$\cong 40$	$\cong 0,6$	max. 125	3	1,5	0,3	
		/ 1,6 x	/	x	/ S	$\downarrow$	$\downarrow$					
		/ 1,6 x	/	x	/ S	$\cong 200$	$\cong 1,5$					
	Z442	/ 2 x	/	x	/ S	$\cong 40$	$\cong 0,8$	max. 160	4	2		
		/ 2 x	/	x	/ S	$\downarrow$	$\downarrow$					
		/ 2 x	/	x	/ S	$\cong 250$	$\cong 1,9$					
	Z442	/ 2,5 x	/	x	/ S	$\cong 40$	$\cong 0,8$		5			
		/ 2,5 x	/	x	/ S	$\downarrow$	$\downarrow$					
		/ 2,5 x	/	x	/ S	$\cong 250$	$\cong 2,4$					
	Z442	/ 3 x	/	x	/ S	$\cong 40$	$\cong 1,0$	6	3			
		/ 3 x	/	x	/ S	$\downarrow$	$\downarrow$					
		/ 3 x	/	x	/ S	$\cong 250$	$\cong 2,9$					
	Z442	/ 3,5 x	/	x	/ S	$\cong 80$	$\cong 1,0$	7				
		/ 3,5 x	/	x	/ S	$\downarrow$	$\downarrow$					
		/ 3,5 x	/	x	/ S	$\cong 250$	$\cong 3,4$					
	Z442	/ 4 x	/	x	/ S	$\cong 40$	$\cong 1,6$	max. 200	8			
		/ 4 x	/	x	/ S	$\downarrow$	$\downarrow$					
		/ 4 x	/	x	/ S	$\cong 400$	$\cong 3,9$					
	Z442	/ 4,5 x	/	x	/ S	$\cong 40$	$\cong 1,6$					
		/ 4,5 x	/	x	/ S	$\downarrow$	$\downarrow$					
		/ 4,5 x	/	x	/ S	$\cong 315$	$\cong 4,4$					
	Z442	/ 5 x	/	x	/ S	$\cong 40$	$\cong 2,0$	max. 250	10			
		/ 5 x	/	x	/ S	$\downarrow$	$\downarrow$					
		/ 5 x	/	x	/ S	$\cong 400$	$\cong 4,9$					
	Z442	/ 5,5 x	/	x	/ S	$\cong 60$	$\cong 2,0$					
		/ 5,5 x	/	x	/ S	$\downarrow$	$\downarrow$					
		/ 5,5 x	/	x	/ S	$\cong 250$	$\cong 5,4$					
	Z442	/ 6 x	/	x	/ S	$\cong 40$	$\cong 2,5$		12	5	0,5	
		/ 6 x	/	x	/ S	$\downarrow$	$\downarrow$					
		/ 6 x	/	x	/ S	$\cong 400$	$\cong 5,9$					
	Z442	/ 6,5 x	/	x	/ S	$\cong 80$	$\cong 2,5$					
		/ 6,5 x	/	x	/ S	$\downarrow$	$\downarrow$					
		/ 6,5 x	/	x	/ S	$\cong 315$	$\cong 6,4$					

Formulaire de commande

Firma/Company/Société: _____

Zuständig/Contact/Responsable: _____

Tel.: _____ Fax: _____

E-mail: _____ Datum/Date: _____

☐ Bestellung/Order/Commande Nr./No.: _____ ☐ Anfrage/Quotation/Demande

Z442/.../S

Auswerferstift, zylindrischer Kopf, abgesetzt
Shouldered ejector pin, cylindrical head
Ejecteur à tête cylindrique, épaulé

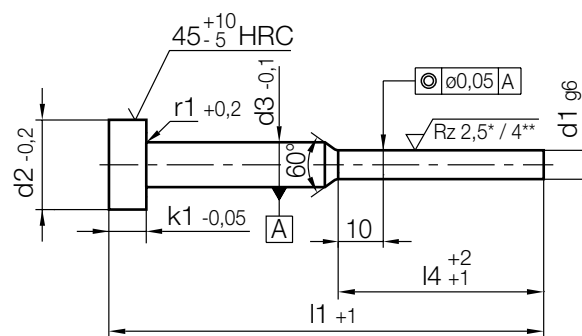
Mat.: $WS^* (\approx 1.2516) / 60_{-2}^{+4}$ HRC ☐

mit DLC Beschichtung ☐

with DLC coating ☐

Mat.: WAS** (≈ 1.2343) ≥ 950 HV0,3 ☐

Mat.:

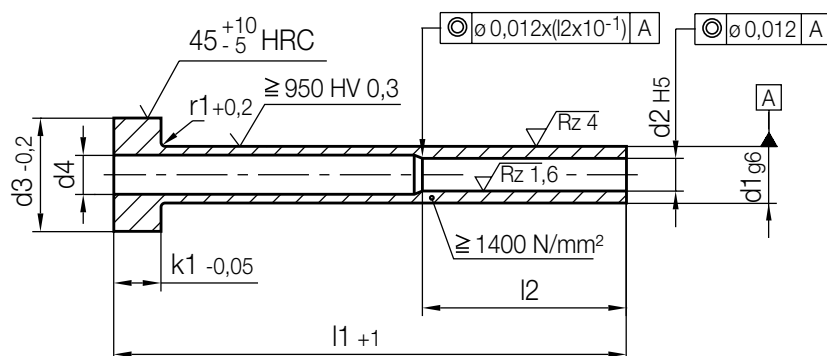
[illegible]

Formulaire de commande

☐ Bestellung / Order / Commande Nr./No.: _____ ☐ Anfrage / Quotation / Demande

Auswerferhülse
Ejector sleeve
Ejecteur tubulaire
Mat.: WAS (≈ 1.2343)

- ☐ gehärtet und nitriert/hardened and nitrided/trempé et nitruré 950 HV 0,3
- ☐ gehärtet/hardened/trempé 52 ± 2 HRC
- ☐ DLC beschichtet (Außen)/with DLC coating (outside)/avec revêtement DLC (à l'extérieur)

[illegible]

Bemerkungen:



Bestellformular

Order form

Formulaire de commande

Firma/Company/Société: _____

Zuständig/Contact/Responsable: _____

Tel.: _____ Fax: _____

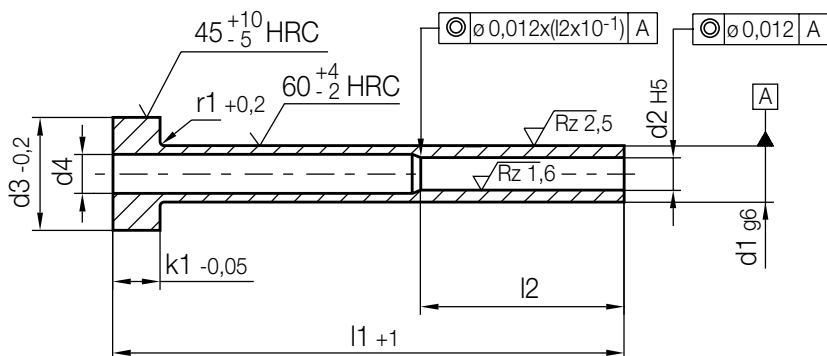
E-mail: _____ Datum/Date: _____

☐ Bestellung/Order/Commande Nr./No.: _____ ☐ Anfrage/Quotation/Demande

Z453/.../S

Auswerferhülse
Ejector sleeve
Ejecteur tubulaire

Mat.: WS (≈ 1.2516)
gehärtet/hardened/trempé



Stck./Pc.	Typ	d1	d2	l1	S	d3	d4	l2	k1	r1
	Z 453 /	x	x	/	S					
	/	x	x	/	S					
	/	x	x	/	S					
	/	x	x	/	S					
	/	x	x	/	S					
	/	x	x	/	S					

Bemerkungen:



Bestellformular

Order form

Formulaire de commande

Firma/Company/Société: _____

Zuständig/Contact/Responsable: _____

Tel.: _____ Fax: _____

E-mail: _____ Datum/Date: _____

☐ Bestellung/Order/Commande Nr./No.: _____ ☐ Anfrage/Quotation/Demande

Z454/.../S

Auswerferhülse, abgesetzt

Ejector sleeve, stepped

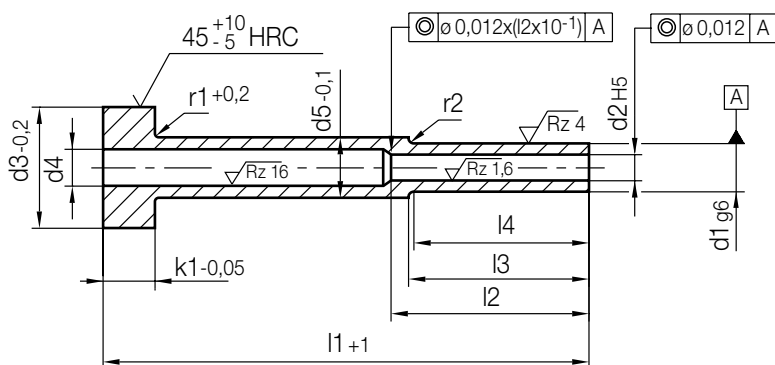
Ejecteur tubulaire, épaulé

Mat.: WAS (≈ 1.2343)

☐ gehärtet und nitriert/hardened and nitrided/trempé et nituré 950 HV 0,3

☐ gehärtet/hardened/trempé 52 $\pm$ 2 HRC

☐ DLC beschichtet (Außen)/with DLC coating (outside)/avec revêtement DLC (à l'extérieur)



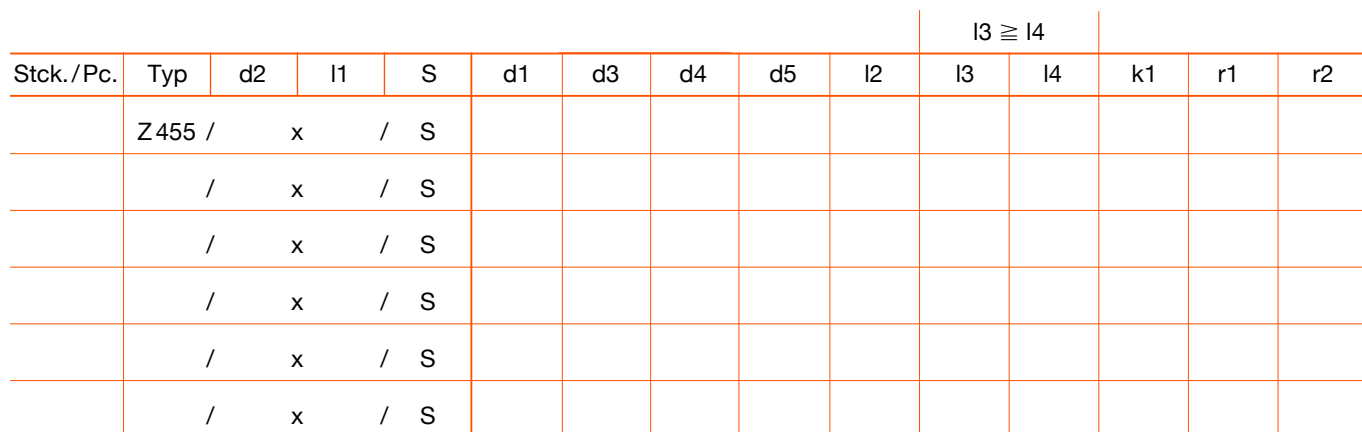
										l3 $\geq$ l4				
Stck./Pc.	Typ	d2	l1	S	d1	d3	d4	d5	l2	l3	l4	k1	r1	r2
	Z454 /	x	/	S										
	/	x	/	S										
	/	x	/	S										
	/	x	/	S										
	/	x	/	S										
	/	x	/	S										

Bemerkungen:

Formulaire de commande

☐ Bestellung / Order / Commande Nr./No.: _____ ☐ Anfrage / Quotation / Demande

Mat.: WS (≈ 1.2516)
gehärtet/hardened/trempé



Bemerkungen:

Bestellformular

Order form

Formulaire de commande

Firma/Company/Société: _____

Zuständig/Contact/Responsable: _____

Tel.: _____

Fax: _____

E-mail: _____

Datum/Date: _____

☐ Bestellung/Order/Commande

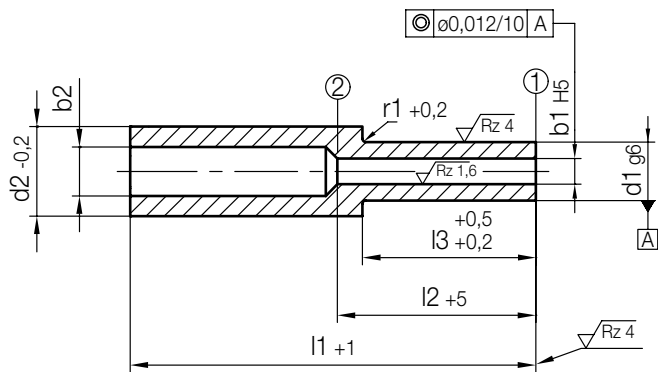
Nr./No.: _____

☐ Anfrage/Quotation/Demande

Z456/.../S

Verschleißhülse
Wear sleeve
Douille d'usure

Mat.: WAS (≈ 1.2343)
gehärtet/hardened/trempé 52 ±2 HRC



Stck./Pc.	Typ	d1	b1	l1	S	r1	b2	l3	l2	d2
	Z 456 /	/	/	x	/ S					
	/	/	/	x	/ S					
	/	/	/	x	/ S					
	/	/	/	x	/ S					
	/	/	/	x	/ S					
	/	/	/	x	/ S					

Bemerkungen:



Bestellformular

Order form

Formulaire de commande

Firma/Company/Société: _____

Zuständig/Contact/Responsable: _____

Tel.: _____ Fax: _____

E-mail: _____ Datum/Date: _____

☐ Bestellung/Order/Commande Nr./No.: _____ ☐ Anfrage/Quotation/Demande

Z466/.../S

Flachauswerfer
Flat ejector pin
Ejecteur lame

Mat.: WS* (≈ 1.2516) / 60 ± 2 HRC ☐

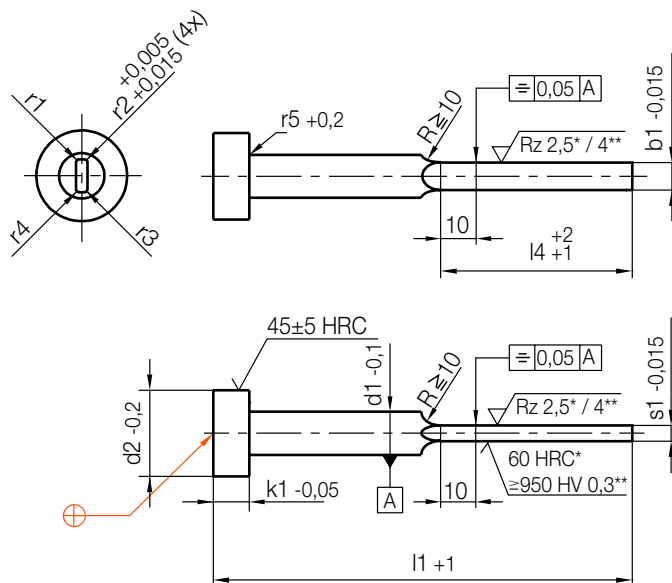
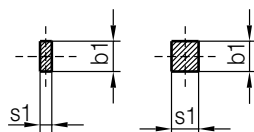
mit DLC Beschichtung

with DLC coating ☐

avec revêtement DLC

Mat.: WAS** (≈ 1.2343) ≥ 950 HV0,3 ☐

Mat.:



*** $\geq 0,15$

keine Angabe = scharfkantig

not specified = sharp-edged

sans indication = à arêtes vives

Stck./ Pc.	Typ	d1	l1	b1	s1	l4	S	r1	r2	r3	r4	l1	b1	s1	b1=s1	max. l4	d2	k1	r5
	Z466 / 3	x	x	x	x	/ S						≥ 40	≥ 2	$\geq 0,6$	$\geq 1,5$	80	6	3	0,3
	/ 3	x	x	x	x	/ S						$\downarrow$	$\downarrow$	$\downarrow$		$\downarrow$			
	/ 3	x	x	x	x	/ S						≥ 250	$\geq 2,5$	≥ 1	≥ 2				
	Z466 / 3,5	x	x	x	x	/ S						≥ 80	≥ 2	$\geq 0,6$	$\geq 1,5$		7		
	/ 3,5	x	x	x	x	/ S						$\downarrow$	$\downarrow$	$\downarrow$		$\downarrow$			
	/ 3,5	x	x	x	x	/ S						≥ 250	≥ 3	≥ 1	$\geq 2,3$				
	Z466 / 4	x	x	x	x	/ S						≥ 40	$\geq 2,5$	$\geq 0,6$	$\geq 1,5$	100	8		
	/ 4	x	x	x	x	/ S						$\downarrow$	$\downarrow$	$\downarrow$		$\downarrow$			
	/ 4	x	x	x	x	/ S						≥ 400	$\geq 3,5$	$\geq 1,2$	$\geq 2,7$				
	Z466 / 4,5	x	x	x	x	/ S						≥ 40	$\geq 2,5$	$\geq 0,8$	$\geq 1,5$		$\downarrow$		
	/ 4,5	x	x	x	x	/ S						$\downarrow$	$\downarrow$	$\downarrow$		$\downarrow$			
	/ 4,5	x	x	x	x	/ S						≥ 315	≥ 4	$\geq 1,2$	≥ 3				
	Z466 / 5	x	x	x	x	/ S						≥ 40	≥ 3	≥ 1	$\geq 1,5$		10		
	/ 5	x	x	x	x	/ S						$\downarrow$	$\downarrow$	$\downarrow$		$\downarrow$			
	/ 5	x	x	x	x	/ S						≥ 400	$\geq 4,5$	$\geq 1,3$	$\geq 3,4$				
	Z466 / 5,5	x	x	x	x	/ S						≥ 60	≥ 3	≥ 1	≥ 2		$\downarrow$		
	/ 5,5	x	x	x	x	/ S						$\downarrow$	$\downarrow$	$\downarrow$		$\downarrow$			
	/ 5,5	x	x	x	x	/ S						≥ 315	≥ 5	$\geq 1,3$	$\geq 3,7$				
	Z466 / 6	x	x	x	x	/ S						≥ 40	≥ 3	≥ 1	$\geq 2,5$	125	12	5	0,5
	/ 6	x	x	x	x	/ S						$\downarrow$	$\downarrow$	$\downarrow$		$\downarrow$			
	/ 6	x	x	x	x	/ S						≥ 400	$\geq 5,5$	$\geq 1,3$	$\geq 4,1$				
	Z466 / 6,5	x	x	x	x	/ S						≥ 80	≥ 3	$\geq 1,2$	$\geq 2,5$		$\downarrow$		
	/ 6,5	x	x	x	x	/ S						$\downarrow$	$\downarrow$	$\downarrow$		$\downarrow$			
	/ 6,5	x	x	x	x	/ S						≥ 315	≥ 6	≥ 2	$\geq 4,4$				
	Z466 / 7	x	x	x	x	/ S						≥ 80	≥ 4	$\geq 1,2$	≥ 3		$\downarrow$		
	/ 7	x	x	x	x	/ S						$\downarrow$	$\downarrow$	$\downarrow$		$\downarrow$			
	/ 7	x	x	x	x	/ S						≥ 315	≥ 6	$\geq 2,5$	$\geq 4,8$				



Bestellformular

Order form

Formulaire de commande

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E-mail: _____ Datum/Date: _____

☐ Bestellung/Order/Commande Nr./No.: _____ ☐ Anfrage/Quotation/Demande

Z466/.../S

Flachauswerfer
Flat ejector pin
Ejecteur lame

Mat.: WS* (≈ 1.2516) / 60 ± 2 HRC ☐

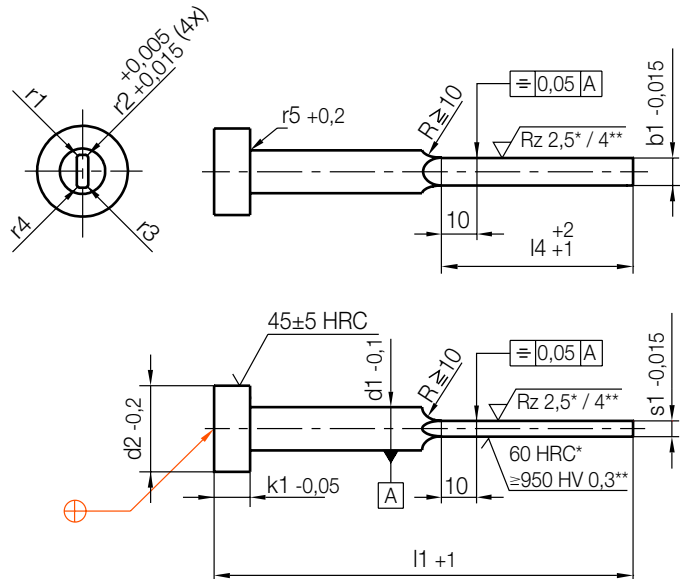
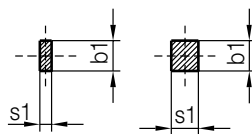
mit DLC Beschichtung ☐

with DLC coating ☐

avec revêtement DLC ☐

Mat.: WAS** (≈ 1.2343) ≥ 950 HV0,3 ☐

Mat.:



*** $\geq 0,15$

keine Angabe = scharfkantig

not specified = sharp-edged

sans indication = à arêtes vives

Stck./ Pc.	Typ	d1	l1	b1	s1	l4	S	r1	r2	r3	r4	l1	b1	s1	b1=s1	max. l4	d2	k1	r5
	Z466 /	8 x	x	x	x	x	/ S					$\cong 40$	$\cong 4$	$\cong 1,2$	$\cong 3$	155	14	5	0,5
	/	8 x	x	x	x	x	/ S					$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$				
	/	8 x	x	x	x	x	/ S					$\cong 400$	$\cong 7$	$\cong 3$	$\cong 5,5$				
	Z466 /	9 x	x	x	x	x	/ S					$\cong 100$	$\cong 5$	$\cong 1,5$	$\cong 3,5$				
	/	9 x	x	x	x	x	/ S					$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$				
	/	9 x	x	x	x	x	/ S					$\cong 315$	$\cong 8$	$\cong 3$	$\cong 6,2$				
	Z466 /	10 x	x	x	x	x	/ S					$\cong 60$	$\cong 5$	$\cong 1,5$	$\cong 3,5$	200	16		
	/	10 x	x	x	x	x	/ S					$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$				
	/	10 x	x	x	x	x	/ S					$\cong 400$	$\cong 9$	$\cong 3,5$	$\cong 7$				
	Z466 /	11 x	x	x	x	x	/ S					$\cong 100$	$\cong 6$	$\cong 2$	$\cong 4$				
	/	11 x	x	x	x	x	/ S					$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$				
	/	11 x	x	x	x	x	/ S					$\cong 315$	$\cong 10$	$\cong 3,5$	$\cong 7,6$				
	Z466 /	12 x	x	x	x	x	/ S					$\cong 80$	$\cong 6$	$\cong 2$	$\cong 4$		18	7	0,8
	/	12 x	x	x	x	x	/ S					$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$				
	/	12 x	x	x	x	x	/ S					$\cong 400$	$\cong 11$	$\cong 3,5$	$\cong 8,3$				
	Z466 /	14 x	x	x	x	x	/ S					$\cong 100$	$\cong 7$	$\cong 2$	$\cong 5$		22		
	/	14 x	x	x	x	x	/ S					$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$				
	/	14 x	x	x	x	x	/ S					$\cong 400$	$\cong 13$	$\cong 4$	$\cong 9,7$				
	Z466 /	16 x	x	x	x	x	/ S					$\cong 100$	$\cong 8$	$\cong 2$	$\cong 5$				
	/	16 x	x	x	x	x	/ S					$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$				
	/	16 x	x	x	x	x	/ S					$\cong 400$	$\cong 16$	$\cong 4$	$\cong 11,2$				
	Z466 /	18 x	x	x	x	x	/ S					$\cong 160$	$\cong 9$	$\cong 3$	$\cong 6$		24		
	/	18 x	x	x	x	x	/ S					$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$				
	/	18 x	x	x	x	x	/ S					$\cong 315$	$\cong 17$	$\cong 4,5$	$\cong 12,6$				
	Z466 /	20 x	x	x	x	x	/ S					$\cong 160$	$\cong 10$	$\cong 3$	$\cong 8$		26	8	1
	/	20 x	x	x	x	x	/ S					$\downarrow$	$\downarrow$	$\downarrow$	$\downarrow$				
	/	20 x	x	x	x	x	/ S					$\cong 400$	$\cong 19$	$\cong 5$	$\cong 14$				



Bestellformular

Order form

Formulaire de commande

Firma/Company/Société: _____

Zuständig/Contact/Responsable: _____

Tel.: _____ Fax: _____ Datum/Date: _____

☐ Bestellung/Order/Commande

Nr./No.: _____

☐ Anfrage/Quotation/Demande

Z 3600 /.../S

Einfallkern

Sonderanfertigung,
welche speziell für Ihren individuellen
Artikel konstruiert wird

Collapsible core

Special production
that is designed for your individual
articles

Noyau éclipseable

Dispositif sur mesure
conçu spécialement pour vos produits
individuels

Beispiele



Examples



Wir benötigen von Ihnen folgende
Angaben:

- Anzahl der benötigten Kerne
- Zu verarbeitender Kunststoff
- Schwindung des Kunststoffes
(wenn möglich sollte uns das
Datenblatt des Kunststoffes zur
Verfügung gestellt werden).
- CAD-Konstruktionsdaten Ihres
Artikels

Please supply the following information:

- Quantity of cores required
- Type of plastic to be processed
- Shrinkage of the plastic
(where possible, please provide
us with a copy of the specifications
sheet for the plastic).
- CAD design data for your article

Nous avons besoins des indications
suivantes:

- Nombre de noyaux requis
- Matière synthétique à usiner
- Retrait de la matière synthétique
(si possible, nous vous prions de
nous communiquer la fiche
technique de la matière synthétique).
- Informations CAD concernant la
construction de votre produit

Beachten:

Für Ihre speziellen Anwendungsfälle
steht Ihnen die HASCO Anwendungs-
technik zur Verfügung
(fe@hasco.com).

Caution:

HASCO application technology is
available to assist you with your
special applications
(fe@hasco.com).

Remarque:

La technique d'application de
HASCO peut être mise à disposition
pour vos cas particuliers
(fe@hasco.com).

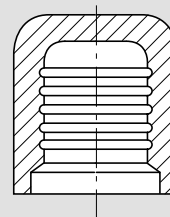
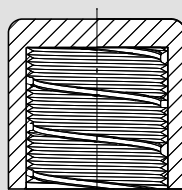
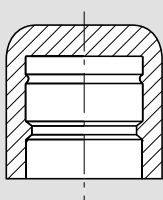
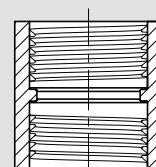
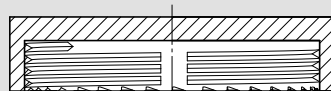
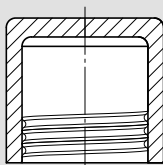
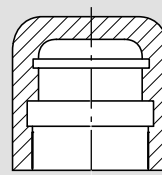
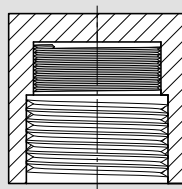
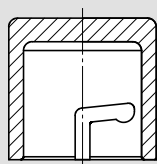


Z3600/.../S

Artikelbeispiele

Examples of articles

Exemples d'articles



HASCO Hasenclever GmbH + Co KG
Postfach 1720
D-58467 Lüdenscheid
Römerweg 4
D-58513 Lüdenscheid
T +49 2351 957-0
F +49 2351 957-237
www.hasco.com
info@hasco.com