

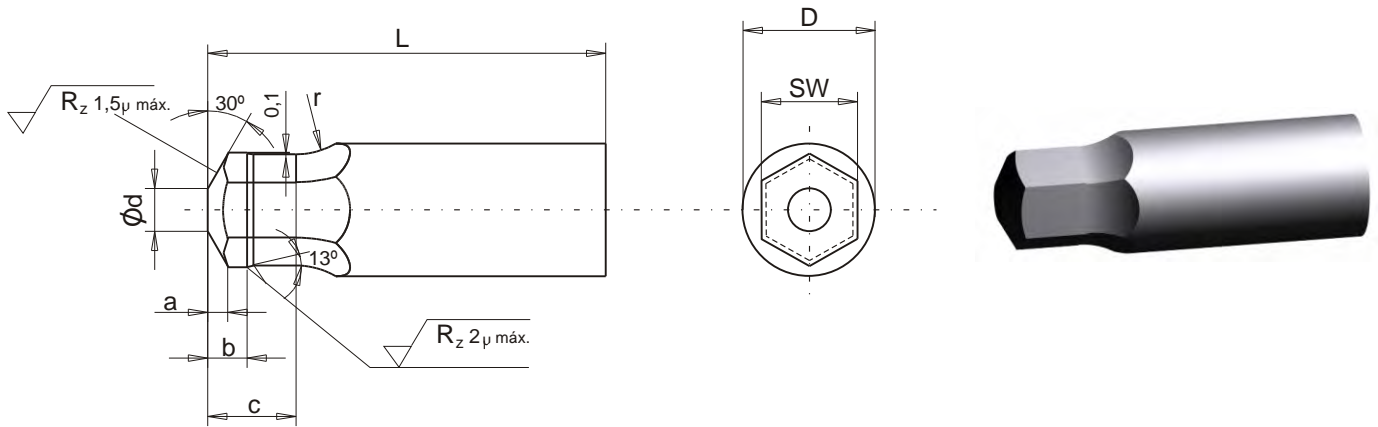
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# PUNZON SIN CABEZA - TIPO "K" PARA ESTAMPACION DE HEXAGONO INTERIOR

## HEXAGON SOCKET HEAD PUNCH TYPE "K" POLISHED



**UTILIDAD :** Estampación hexagono interior en las cabezas de los tornillos del DIN EN ISO 4762 (antes Din 912)  
**USE :** For cylinder head bolts to DIN EN ISO 4762, previously DIN 912.

**CARACTERISTICAS :** Templado y lapeado en toda su longitud. Zona hexagonal bruñida.

**CHARACTERISTICS :** Hardened, tempered and fully fine ground finished, detensioned with polished hexagon shape.

**MATERIAL :** Acero rápido y Vanadis 30

HSS and Vanadis 30

**DUREZAS / HARDNESS :** Hrc 64 + 2

METRICO SIZE	D (f7)	SW 0 -0.02	L ±0.10	a ±0.10	b +0.20	c +0.50	d ±0.35	r
M 3	4.0	2.58	36.0	X	X	2.3	X	5
M 4	5.0	3.08	36.0	X	X	3.0	X	5
M 5	6.0	4.09	36.0	X	X	4.0	X	5
M 6	7.0	5.14	36.0	X	X	5.0	X	5
M 8	7.5	6.14	36.0	X	X	6.5	X	6
M 10	10.0	8.17	36.0	X	X	7.5	X	6
M 12	12.0	10.17	36.0	X	X	8.4	X	6
M 14	14.5	12.21	47.0	X	X	10.0	X	8
M 16	17.0	14.21	47.0	X	X	13.5	X	8
M 18	18.0	14.21	52.0	X	X	13.5	X	8
M 20	20.0	17.23	55.0	X	X	15.0	X	8

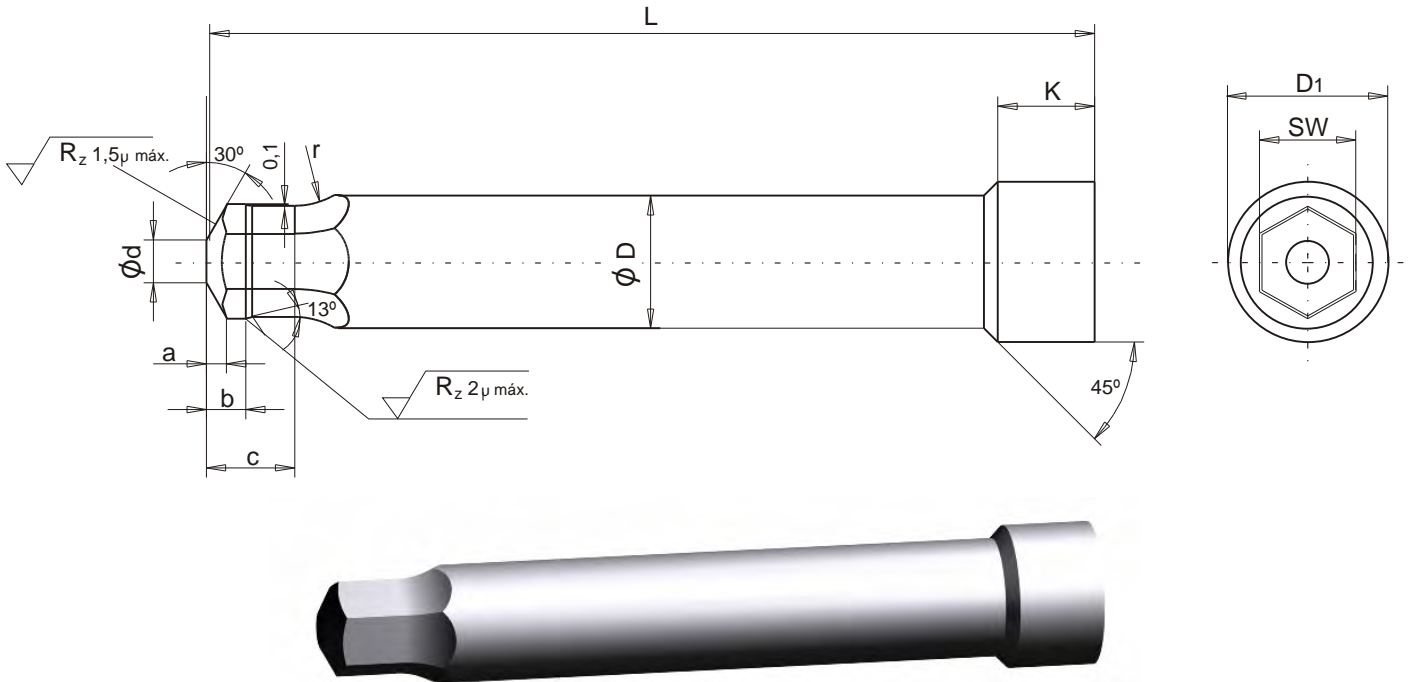
a, b, d = Elección del cliente / Customer's choice.

**FORMA DE PEDIDO / ORDER FORM :** Metrico / Size.



# PUNZON CON CABEZA - TIPO "L" PARA ESTAMPACION DE HEXAGONO INTERIOR

## HEXAGON SOCKET HEAD PUNCH TYPE "L" POLISHED



**UTILIDAD :** Estampación hexagono interior en las cabezas de los tornillos del DIN EN ISO 4762 (antes Din 912)  
**USE :** For cylinder head bolts to DIN EN ISO 4762, previously DIN 912.

**CARACTERISTICAS :** Templado y lapeado en toda su longitud. Zona hexagonal bruñida.

**CHARACTERISTICS :** Hardened, tempered and fully fine ground finished, detensioned with polished hexagon shape.

**MATERIAL :** Acero rápido y Vanadis 30

HSS and Vanadis 30

**DUREZAS / HARDNESS :** Hrc 64 + 2

METRICO	D	D1 0	SW 0	L	a	b	c	d	r	K
SIZE	f7	-0.1	-0.02	±0.10	±0.10	+0.20	+0.50	±0.35		±0.10
M 3	3.5	5.0	2.58	44.2	X	X	2.3	X	5	6.5
M 4	5.0	7.0	3.08	44.2	X	X	3.0	X	5	6.5
M 5	5.5	7.0	4.09	58.0	X	X	4.0	X	5	6.5
M 6	6.6	8.2	5.14	58.0	X	X	5.0	X	5	6.5
M 8	8.0	9.5	6.14	58.0	X	X	6.5	X	6	6.5
M 10	10.0	11.5	8.17	80.0	X	X	7.5	X	6	8.8
M 12	12.5	14.5	10.17	80.0	X	X	8.4	X	6	9.0
M 14	15.0	17.0	12.21	90.0	X	X	10.0	X	8	10.0
M 16	17.0	19.0	14.21	90.0	X	X	13.5	X	8	10.0
M 18	17.0	19.0	14.21	90.0	X	X	13.5	X	8	10.0
M 20	21.0	23.5	17.23	100.0	X	X	15.0	X	8	12.0
M 24	23.0	24.0	19.27	152.9	X	X	18.0	X	10	12.0

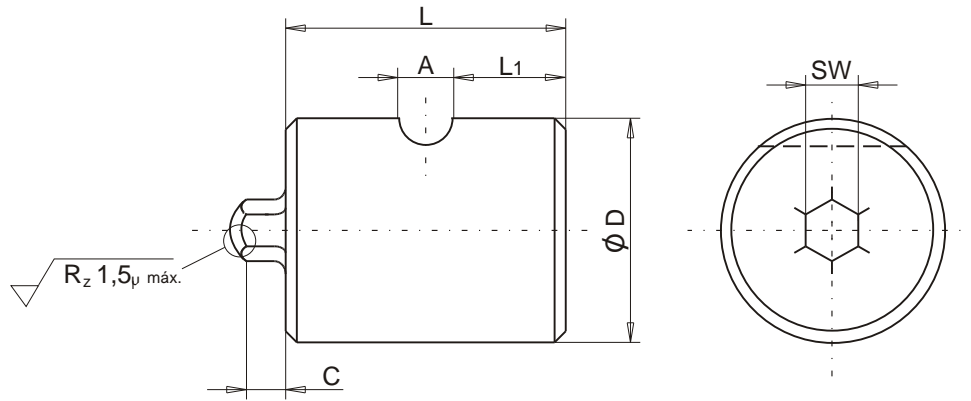
a, b, d = Elección del cliente / Customer's choice.

**FORMA DE PEDIDO / ORDER FORM :** Metrico / Size.



# PUNZON SIN CABEZA - TIPO "M" PARA ESTAMPACION DE HEXAGONO INTERIOR

## HEXAGON SOCKET HEAD PUNCH, POLISHED "M" TYPE



**UTILIDAD :** Estampación hexagono interior en las cabezas de los tornillos del DIN EN ISO 10642 (antes Din 7991)

**USE :** For countersunk bolts to DIN EN ISO 10642, previously DIN 7991.

**CARACTERISTICAS :** Templado y lapeado en toda su longitud. Zona hexagonal bruñida.

**CHARACTERISTICS :** Hardened, tempered and fully fine ground finished, detensioned with polished hexagon shape.

**MATERIAL :** Vanadis 30 / Vanadis 30

**DUREZAS / HARDNESS :** Hrc 64 + 2

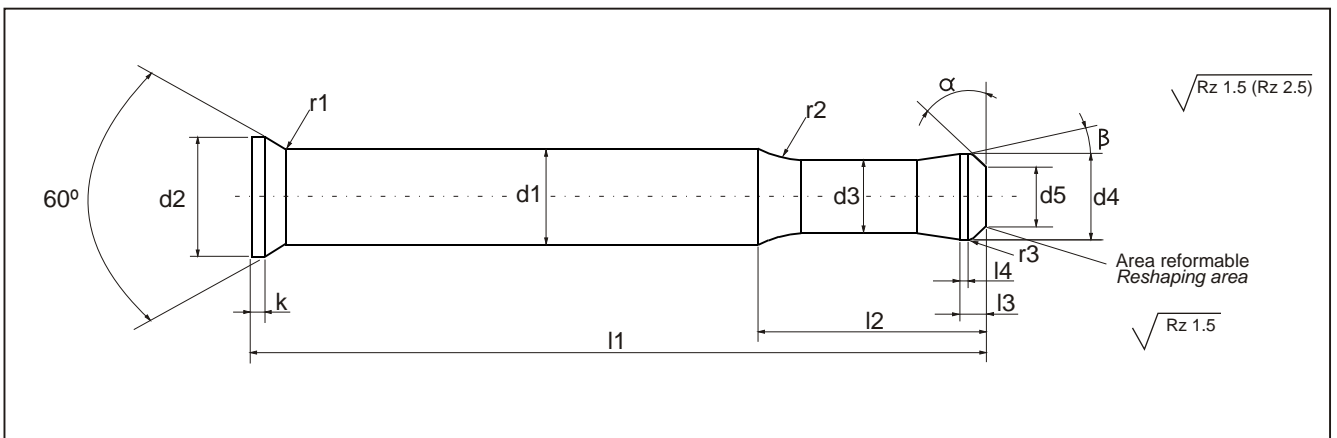
METRICO SIZE	SW 0 -0.015	D g6	L +0 -0.1	L1	A	c +0 -0,01
M 3	2.1	13	25	10.5	3	1.2
M 4	2.5	13	25	10.5	3	1.8
M 5	3.1	17	25	9.5	5	2.3
M 6	4.12	17	25	9.5	5	2.5
M 8	5.14	20	25	9.5	5	3.5
M 10	6.14	25	25	9.5	5	4.4
M 12	8.175	30	25	9.5	5	4.5

**FORMA DE PEDIDO / ORDER FORM :** Metrico / Size.



# PUNZON DE FORMA "FF" FLOW FORM PUNCH "FF"

Con cabeza avellanada 60° / With 60° countersunk head



- CARACTERISTICAS :** Templado y lapeado en toda su longitud.
- CHARACTERISTICS :** Hardened, tempered and fully fine ground finished and polished.
- MATERIAL :** HSS - Vanadis 30 / HSS - Vanadis 30
- DUREZAS / HARDNESS :** HSS = HRc 64 ±2 / Vanadis 30 = HRc 66 ±2

d1	d2	d3	d4	d5	l1	l2	l3	l4	k	r1	r2	r3	α	β

Medidas a petición del cliente / Dimensions at customer's choice.  
 Bajo pedido podemos suministrar otros materiales, formas o variaciones de dureza.  
 On request we also supply other materials or custom designs and hardness variations.

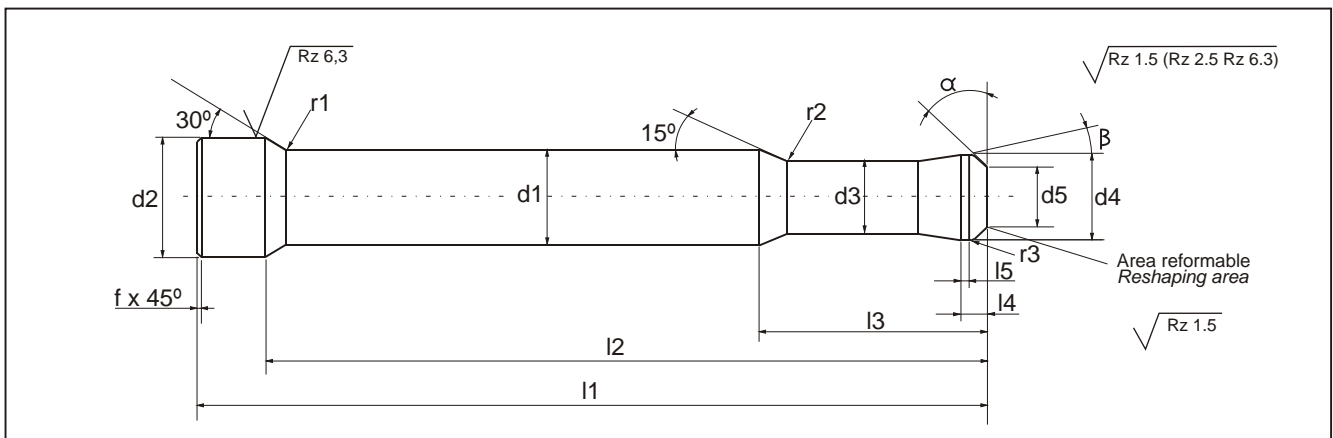


# PUNZON RETROCESO FORMA "RD"

## RECESS DRIFT "RD"

**USO:** Para deshacer la forma realizada con el punzón "FF"

**USE :** For reverse flow forming.



**CARACTERISTICAS :** Templado y lapeado en toda su longitud.

**CHARACTERISTICS :** Hardened, tempered and fully fine ground finished and polished.

**MATERIAL :** HSS - Vanadis 30 / HSS - Vanadis 30

**DUREZAS / HARDNESS :** HSS = HRc 64 ±2 / Vanadis 30 = HRc 66 ±2

d1	d2	d3	d4	d5	l1	l2	l3	l4	f	r1	r2	r3	α	β

**Medidas a petición del cliente / Dimensions at customer's choice.**

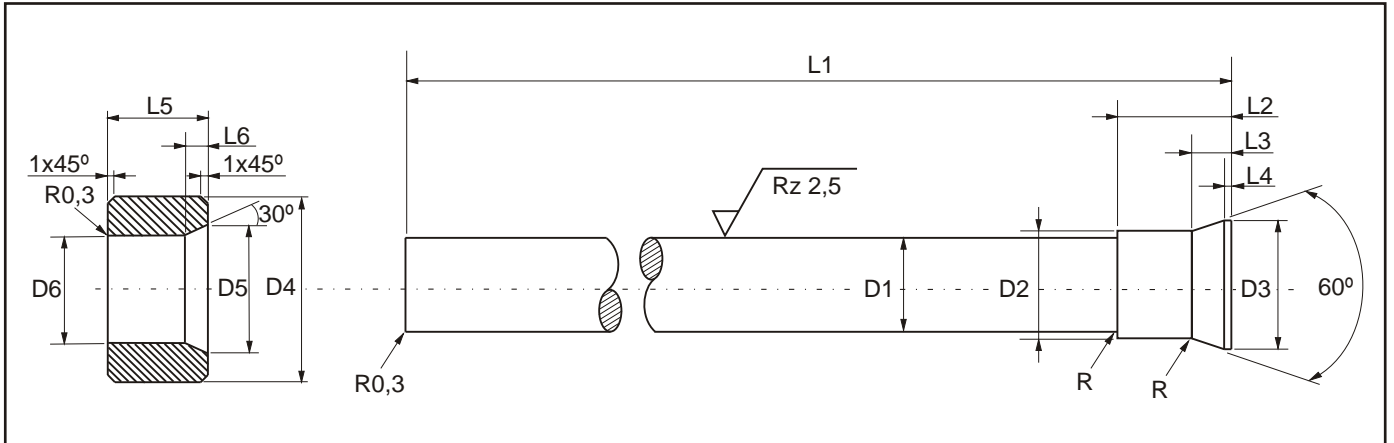
**Bajo pedido podemos suministrar otros materiales, formas o variaciones de dureza.**

**On request we also supply other materials or custom designs and hardness variations.**



# EXPULSOR ENCASQUILLADO " BE "

## BUSHED EJECTOR " BE "



**MATERIAL :** HSS - Vanadis 30 / HSS - Vanadis 30

**DUREZAS / HARDNESS :** HSS = HRc 64 ±2 / Vanadis 30 = HRc 66 ±2

**CARACTERISTICAS :** Templado. Contracción del casquillo ajustada el expulsor.

**CHARACTERISTICS :** Hardened and tempered. Bush shrink fitted to ejector.

**MATERIAL :** Casquillo / Bush =

**MATERIAL :** Expulsor / Ejector =

**DUREZAS :** Casquillo / Bush = HWS - HRc 54 + 2

**HARDNESS :** Expulsor / Ejector = HSS - HRc 60 + 2

L2 = Medida hasta el final del casquillo una vez ensamblado.

L2 = Ejector bush underside in assembled condition.

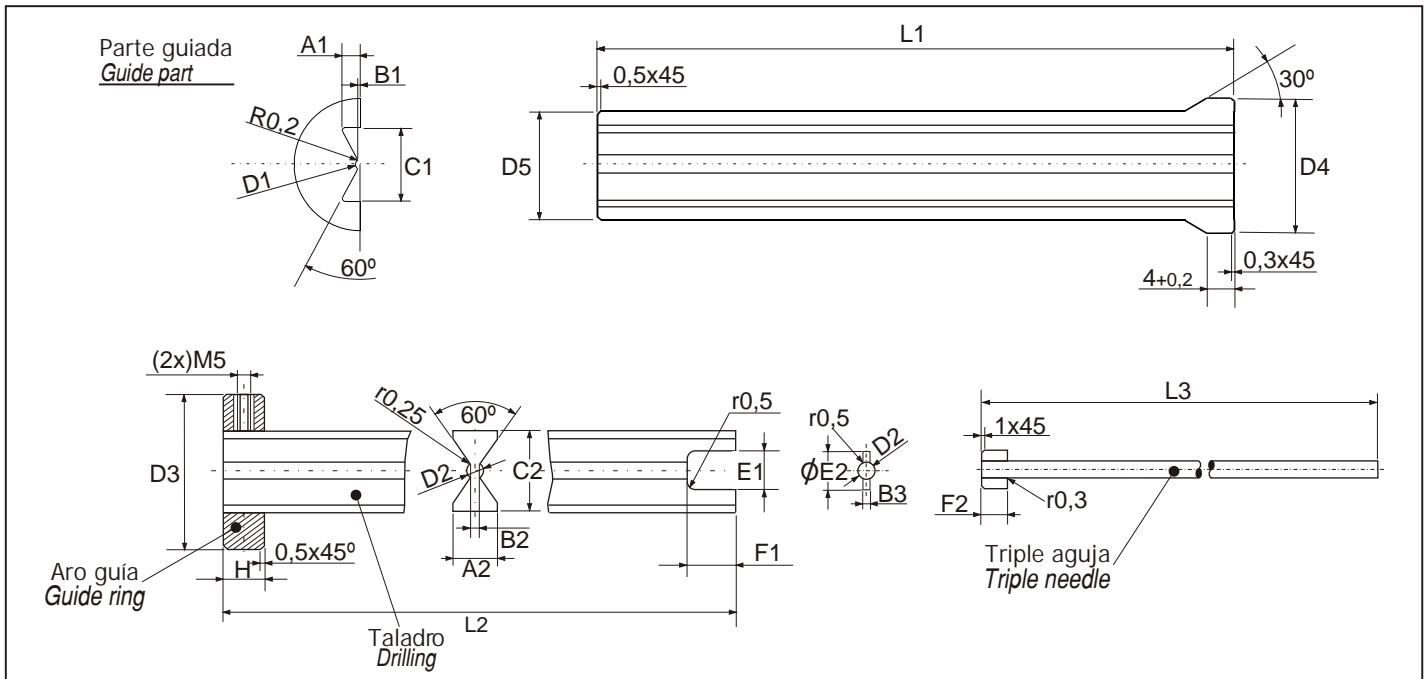
D1	D2	D3	D4	D5	D6	L1	L2	L3	L4	L5	L6
f7	s7		±0.1		H7		±0.05	±0.05		±0.05	

Medidas a elección del cliente / Dimensions at customer's choice.



# CONJUNTO EXPULSOR PERFORADOR " DEV "

## DRILL EJECTOR UNIT " DEV "



**PARTE / PART**

Aguja perforadora / Drill Needle

Taladro / Drill

Aro guía / Guide ring

Parte guiada / Guide part

**MATERIAL DURE**

HWS  
HSS

1.2842

16 MnCr 5

GG 25  
HWS

**ZA / HARDNESS**

Hrc 60 + 2  
Hrc 60 + 2

Hrc 60 ± 2

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Hrc 58 + 2

L1 ±0,1	L2 +0,5 0	L3 +0,5 0	D3 0 -0,1	D4 0 -0,2	D5 f7	A1 +0,1 0	A2 0 -0,1	B1 +0,05 0	B2 0 -0,05

B3 +0,05 0	C1 +0,1 0	C2 0 -0,02	D1 +0,02 0	D2 0 -0,02	E1 +0,2 0	E2 0 -0,1	F1 +0,2 0	F2 0 -0,1	H 0 -0,1

Medidas a petición del cliente / Dimensions at customer's choice.