

TOOLOX[®]

PREHARDENED TOOL STEEL

Toolox para matriceria

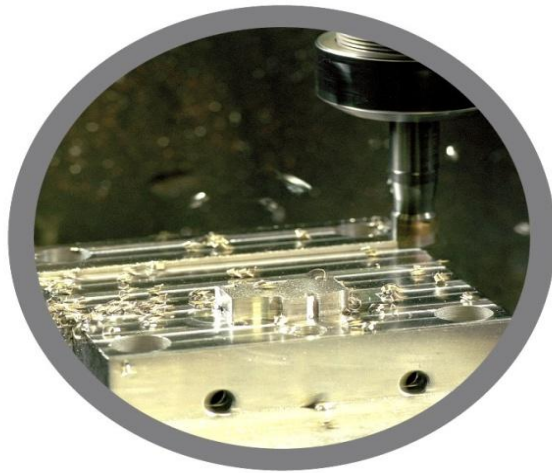
Håkan Engström

SSAB EMEA





Pedido



Mecanizado



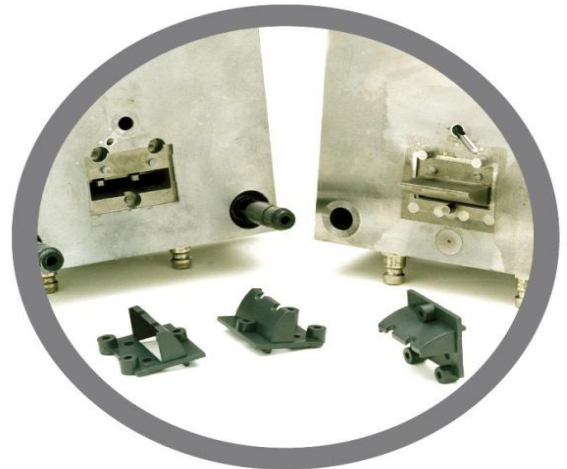
Transporte



Tratamiento termico

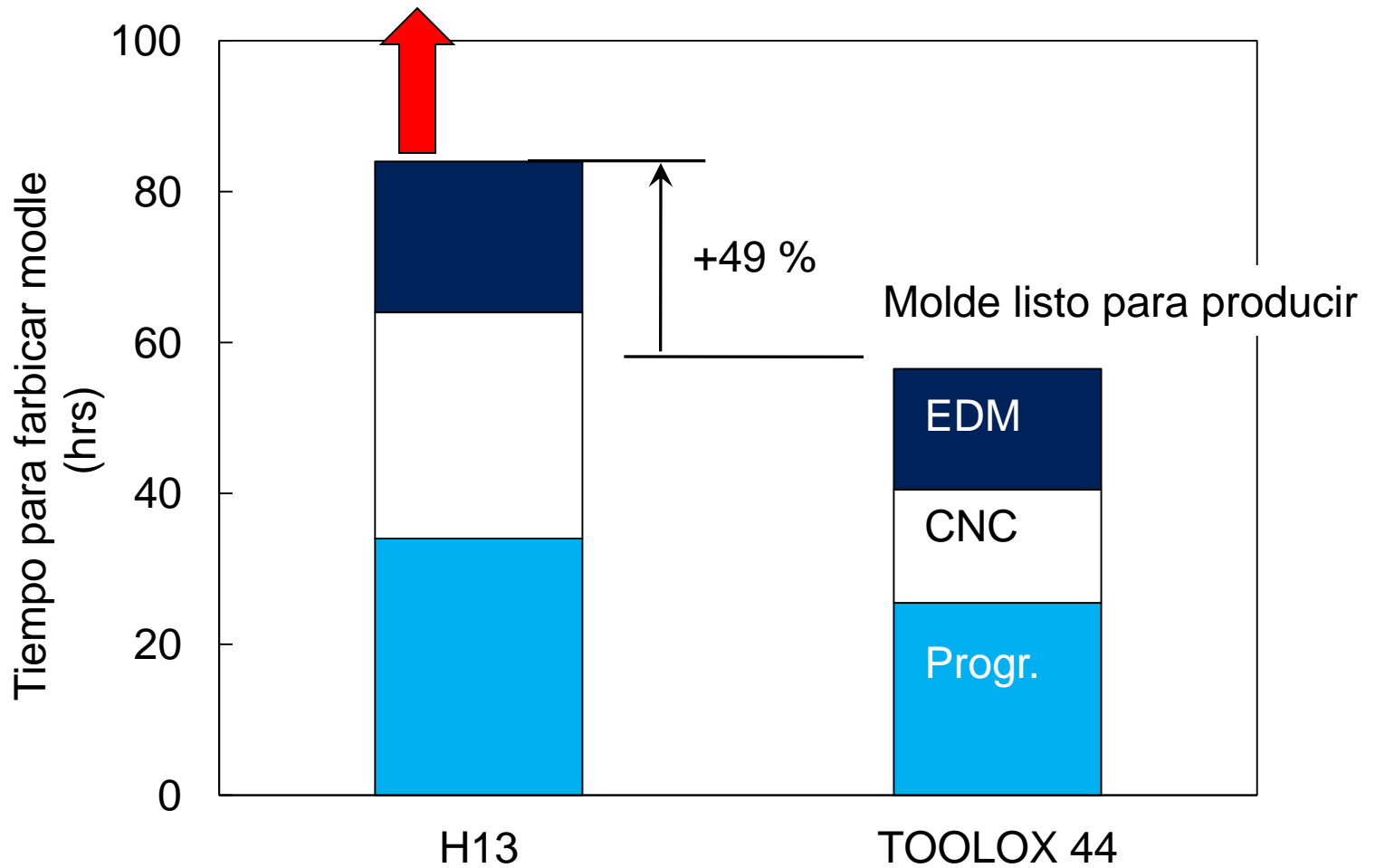


Remecanizado



Production

Tratamiento termico añadido



	TOOLOX 33	W.Nr 1.2738 (40CMD8+Ni)	TOOLOX 44	W.Nr 1.2379 (Z160CDV12)
Dureza	280-330 HBW	280-325 HBW	410-475 HBW	(Tratado a 60-65 HRc)
Resiliencia Garantia	Min 27 J @ RT	Ninguno	Min 18 J @ RT	Ninguno
C	0.25	0.40	0.31	1.55
Mn	0.90	1.50	0.90	-
Cr	1.20	1.90	1.35	12.0
Ni	0.70	1.00	0.70	-
Mo	0.40	0.22	0.80	0.70
V	0.125	-	0.145	0.80
CE	0.79	1.14	0.97	4.25



Inspection certificate EN 10 204 - 3.1	A02	Issuing department Quality Inspection	A05	Purchaser order no November/December	A07	Our order no 10071412	A08	Certificate no and date 12611344 2009-02-20	A03
---	-----	--	-----	---	-----	--------------------------	-----	--	-----

Consignee SSAB Oxelösund AB Antwerp Block C/o Bvba Thor Shipping & Transport 2030 Antwerpen Belgium Belgium	A06	Product Tool steel	B01	Marking (Stamping) Trade mark, PLATE ID NO	B06	Standard/rules Steel grade	OX TOOLOX 33	B02		
	Dimensions [mm] T 53 W 2080 L 5240	B10-B12	Weight [kg] 4648	B13	PLATE ID NO 090259-768709	B07	Deliv. Cond. Q	B04	Internal code 21059	B16
	Purchaser SSAB Oxelösund AB C/O Bvba Thor Shipping & Transport Quay	All	Customer marks	B15						

Chemical composition	C71-C92	Carbon equivalent etc	C93-C99
Heat no 090259	C Si Mn P S Cr Ni Mo V Ti Cu Al Nb B N .25 1.05 .80 .010 .001 1.20 .06 .345 .112 .011 .01 .011 .017 .002 .003		

Testtype	C04	Millcode	C00	Specimen position	C01	Direction	C02	Treatment	B05	Specimen type	C10	Temp [degr C]	C03	Test results
Tensile Test		207542		Top end		Transvers		Delivery condition		Round				C11 Rp0.2 [MPa] 854 C12 Rm [MPa] 963 C13 A5 [%] 19
Impact test		207542		Top end		Transvers		Delivery condition		Charpy-V 10x10		20		C42 E [J] 142 C42 E [J] 144 C42 E [J] 149 C43 Ave [J] 145
Hardness test (HBW)		207542		Top end				Delivery condition						C32 Ave 307

Ultrasonic testing: Satisfactory results according to: TOOLSTEEL

	It is hereby certified that the material described above complies with the requirements of the order.	Z02		This certificate is produced with EDP and valid without signature	Z01		A04
			Quality Inspection Department/ I Ivarsson / R Persson				

Base para refrigerador Electrolux

DP 400 1.0 mm

Antes 1.2363 HT 60 HRC

> Toolox 44

2003-2007

1.6 million piezas producido





CPS Automotive, Istanbul

Freno para camion

WABCO

Dimension: Dia 300mm x 50 mm

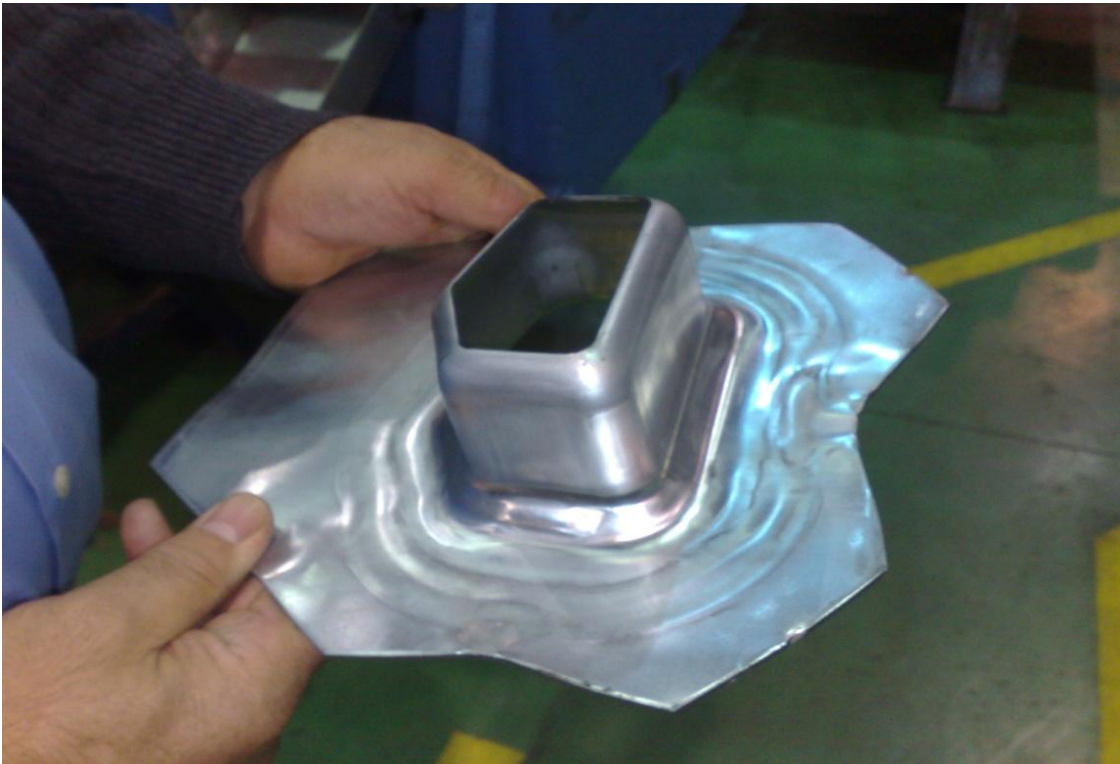
3,5 mm acero bajo limite elastico

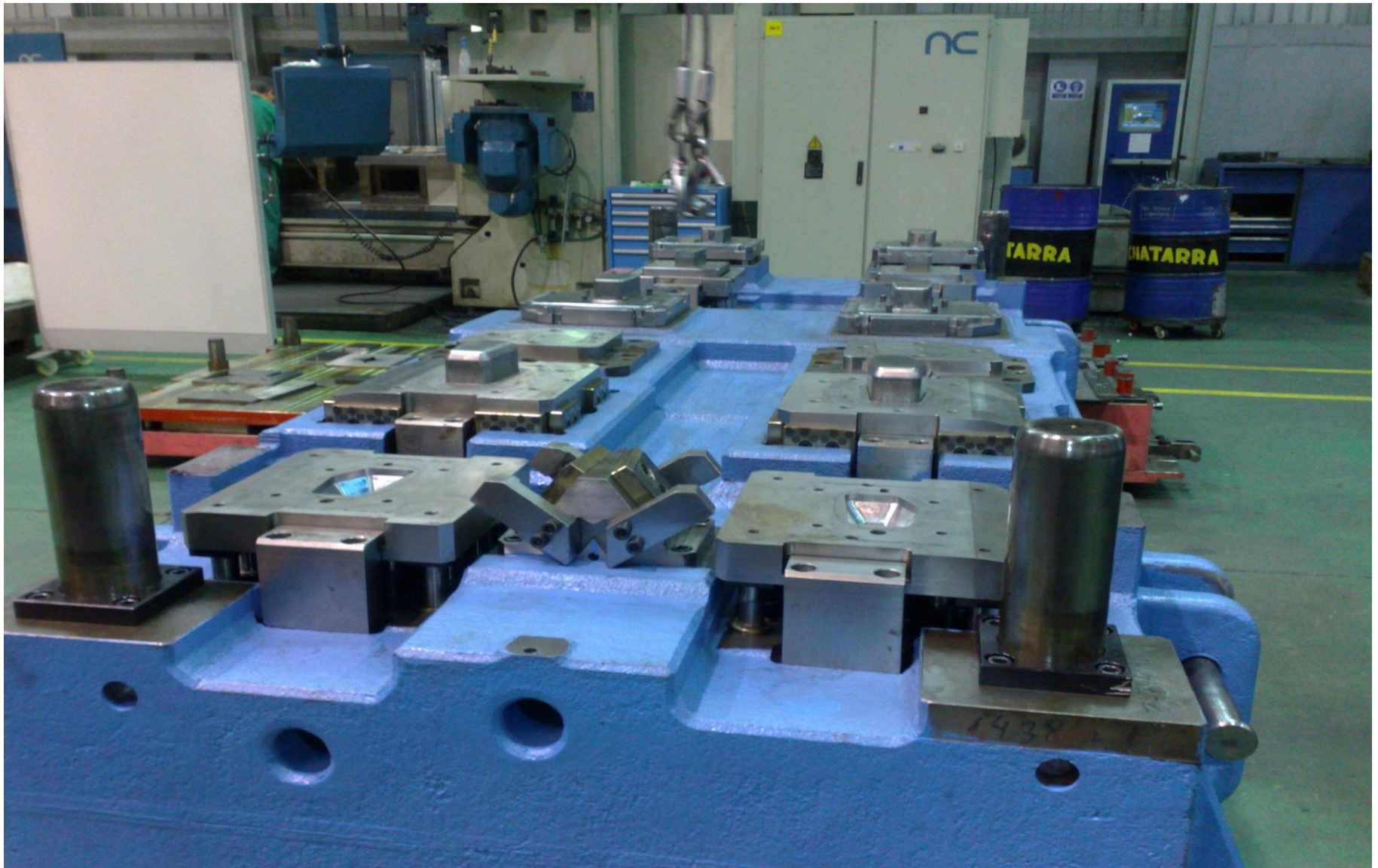


Acero	Dureza	Carga de prensa (tons)	Tiempo en prensa	Vida matriz	
1.2344	48 HRc	800 tons	2 seg	max.3000 pcs	Fisuras
Nimax	38 HRc	800 tons	2 seg	1000 pcs	Deformation
Toolox 44	45 HRc + Nitruracion	700 tons	0,5 seg	50.000	Todavia produciendo

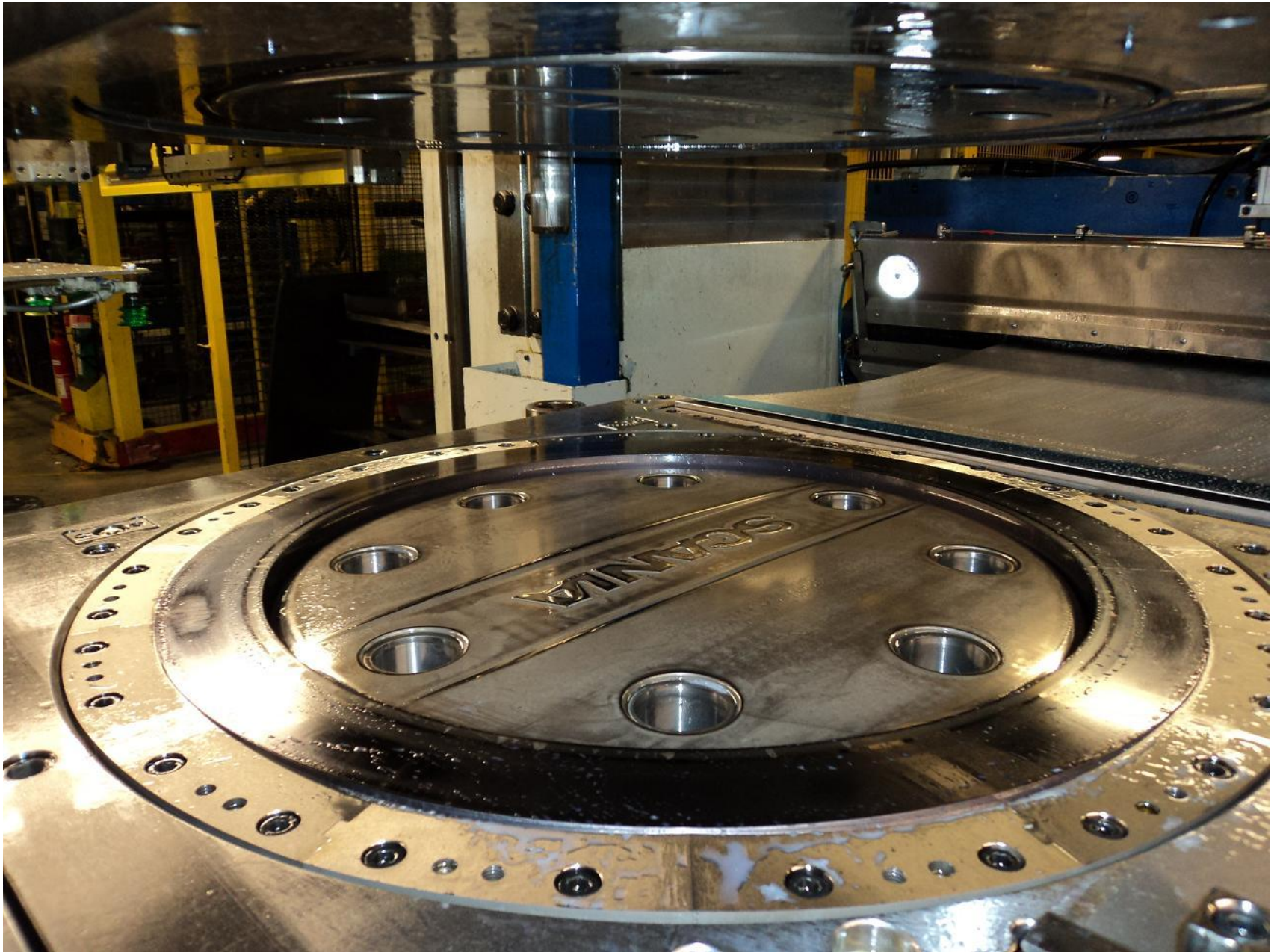
Pieza para automovil (Ford)
Acero H250. Espesor 2.5 mm
Antes 1.2379 HT 60-62 HRC
Problemas con fisuras de fatiga

> Toolox 44 (+ nitruracion)









Pieza para automovil Punzonado

DP 600. Esp 4.7 mm

1.2379 (60 HRC). Average life time 2000-3000 pieces

> Toolox 44 + nitruracion

Vida util > 80000 pieces



Toolox 44, nitrurado

Chapa 270 MPa. Esperor 3.8 mm



D2 = W.Nr 1.2379

Result;

- | | |
|-----------------------|--|
| -D2 58-60 HRC; | 10,000 blanks |
| -D2 54-56 HRC; | 10,000 blanks |
| -DC53 (8% Cr steel); | 15,000 blanks |
| -Toolox 44, nitrided; | >256,000 blanks,
still in production. |





