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Cembre

ISO 9001
Certified Quality Management System

ISO 14001
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OHSAS 18001
Certified Occupational Health & Safety Management System

ENGLISH
FRANÇAIS
DEUTSCH
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ITALIANO

HYDRAULIC PULLER TYPE PUNCHING TOOL
OUTIL HYDRAULIQUE EMPORTE PIECE
HYDRAULISCHES LOCHSTANZWERKZEUG
HERRAMIENTA HIDRAULICA PERFORADORA
UTENSILE OLEODINAMICO FORALAMIERE

HT-FL75

OPERATION AND MAINTENANCE MANUAL
NOTICE D'UTILISATION ET ENTRETIEN
BEDIENUNGSANLEITUNG
MANUAL DE USO Y MANTENIMIENTO
MANUALE D'USO E MANUTENZIONE

WARNING LABELS - ETIQUETTES SIGNALETIQUES - WARNSCHILDER - ETIQUETAS DE ATENCIÒN - ETICHETTE D'AVVERTENZA

	*– Before using the tool, carefully read the instructions in this manual.* *– Avant d'utiliser cet outil, lire attentivement les instructions de cette notice.* *– Vor Inbetriebnahme unbedingt die Bedienungsanleitung durchlesen.* *– Antes de utilizar la herramienta, leer atentamente las instrucciones contenidas en este manual.* *– Prima di utilizzare l'utensile, leggere attentamente le istruzioni contenute in questo manuale.*
	*– When operating the tool, keep hands away from the danger zone.* *– Au cours de l'utilisation, tenir les mains éloignées de la zone de danger.* *– Während der Arbeit nicht mit den Händen in den Gefahrenbereich fassen.* *– Durante su utilización, mantenga las manos fuera de la zona de peligro.* *– Durante l'utilizzo, mantenere le mani fuori dalla zona di pericolo.*
	*– Always wear safety glasses and gloves when operating this tool.* *– Porter toujours les lunettes de protection et les gants de travail.* *– Immer mit Schutzbrille und Handschuhen bedienen.* *– Trabajar siempre con las gafas y guantes de seguridad.* *– Operare sempre con visiera protettiva e guanti da lavoro.*

HYDRAULIC PULLER TYPE PUNCHING TOOL
TYPE HT-FL75

⚠ CAUTION

- **Before each use, check the punches, dies and draw studs, and replace any that are worn or damaged, particulary any punches that have damaged cutting surfaces.**
- **Damaged or improperly assembled accessories can break and hit the operator with sufficient force to cause serious injuries.**
- **Before each use, verify the integrity of the head; replace any worn, possibly damaged or missing parts with original Cembre spares.**
- **Only for use in punching holes in single layers of material and thicknesses as shown in TABLES 1 and 2. Any other use may cause components to break with potential risk of serious injury.**
- **During operation do not allow anyone to pause in the work area, especially in front of the punch.**
- **The use of Cembre punching accessories is recommended. Accessories from other suppliers may not be designed to withstand the force generated by this tool and may be damaged or break with potential risk of serious injury.**

1. GENERAL CHARACTERISTICS

– **Application range:** suitable for punching single layers of stainless steel, mild steel, fibreglass and plastic material.

– **Max. puncing capacity:** ..... ø 140 mm (5.5 in.)

– **Developed force:** ..... 75 kN (8.4 sh.ton.)

– **Max. operating pressure** ..... 700 bar (10,000 psi)

– **Dimensions:** length ..... 452 mm (17.8 in.)
width ..... 129 mm (5.1 in.)

– **Weight:** ..... 3,67 kg (8.1 lbs)

– **Oil:** ..... **AGIP ARNICA 32** *or*
SHELL TELLUS OIL TX 32 *or equivalent*

The part code **"HT-FL75"** includes the following:
– Hydraulic tool.
– ø 11.5 mm Spiral bit (code 6134070).
– TD-11 Draw stud with threaded 7/16"-3/4" (code 2685005).
– TD-19 Draw stud with threaded 3/4"-3/4" (code 2685008).
– Plastic carrying case type VAL P28.

2. INSTRUCTIONS FOR USE

2.1) Setting

Consult the tables on pages 26 and 27 and select the **RD...** Punching Kit suitable for the hole to be made. For punching requirements other than those listed, please contact **Cembre**.

Round holes ø 15.5 to 30.5 mm (Ref. to Fig. 4)

1 – Drill a pilot hole in the plate at the desired point, using the ø 11.5 mm spiral bit supplied with the tool.
2 – Fully screw the **TD-11** draw stud into the ram (16) of the head.
3 – Thread the die onto the draw stud, pushing it to rest on the head.
4 – Insert the draw stud into the pilot hole and screw the punch onto the draw stud until its cutting edges are touching the back of the layer of material being punched.

Round holes ø 28.5 to 89 mm (Ref. to Fig. 4)

– Drill a pilot hole in the plate at the desired point, using a ø 20 mm spiral bit; alternatively, it is possible to make the pilot hole with the ø 11.5 mm spiral bit supplied with the tool and widen it with the KIT RD20.5SS.
– Fully screw the draw stud **TD-19** into the ram (16) of the head.
NOTE: the TD-19 draw stud is threaded 3/4" at both ends, screw the short thread into the ram.
– Continue as described in points 3 and 4 above.

Round holes ø 100 and 120 mm (Ref. to Fig. 4)

– Drill a pilot hole in the plate at the desired point, using a ø 29 mm spiral bit; alternatively, it is possible to make the pilot hole with the ø 11.5 mm spiral bit supplied with the tool and widen it with the KIT RD30.5SS.
– Fully screw the draw stud **TD-28,5** (supplied with the Punching Kit) into the ram (7) of the head.
– Continue as described in points 3 and 4 above.

Square and rectangular holes (Ref. to Fig. 4)

– With a drill make the required pilot hole in the plate (see Tab. 2) at the desired point.
– Fully screw the draw stud (supplied with the Punching Kit) into ram (16) of the head.
– Thread the die into the draw stud, pushing it to rest on the head.
– Insert the draw stud into the pilot hole then thread the punch onto the draw stud until its cutting edges are touching the back of the layer of material being punched.
– Fully screw the locking ring onto the draw stud to lock the punch in place.

2.2) Head rotation (Ref. to Fig. 1)

Two independent joints enable the tool head to turn through 360° and rotate through 180°, allowing the operator to work in the most comfortable position.
Warning: do not attempt to turn the head if the hydraulic circuit is pressurised.

2.3) Punching (Ref. to Fig. 3)

Before punching:

- **Check the correct match between die and punch.**
- **Check that the draw stud is completely screwed into the ram.**
- **Check that the punch is completely screwed onto the stud, with its cutting edges touching the back of the layer of material being punched.**
- **Keep hands away from the punching zone to avoid serious risk of injury!**

– Unlock the moving handle (36) through the strap (01).
– Operate moveable handle to advance the ram and punch to achieve the required hole.

2.4) Retracting the punch

– Press the pressure release button (44), the ram will retract and the punch released.
– Remove the punch from the draw stud then carefully and completely remove punch scrap and any residue from the die (Ref. to Fig. 2).

2.5) Rest setting

After completion of the work, press the pressure release lever (44) to release the oil pressure in the tool**.**
Fit the handle restraint (01).

3. USE OF NON ORIGINAL **Cembre** PUNCHING ACCESSORIES

To obtain the best operating results, the use of original **Cembre** punching accessories is recommended; as an alternative, it is possible to use punching accessories made by other manufacturers by requesting separately the specific adaptor (see Table 3). Check the compatibility of the accessories with the characteristics of the **HT-FL75** tool.

4. WARNING

The tool is robust, completely sealed and requires very little daily maintenance.
Compliance with the following points should help to maintain the optimum performance of the tool:

4.1) Thorough cleaning

Dust, sand and dirt are a danger for any hydraulic device.
After each day's use, the tool must be wipped with a clean cloth, taking care to remove any residual particles, especially around moveable parts.

4.2) Storage

When not in use, the tool should be stored and transported in the plastic case, to prevent damage. The case is suitable for storing the tool, the accessories and up to 12 die sets and punches. Plastic case: **VAL P28**, size 620x360x138 mm, (24.4x14.2x5.4 inches) weight 2,4 kg (5.3 lbs.).

5. MAINTENANCE (Ref. to Fig. 6)

Air in the hydraulic circuit may affect the performance of the tool; e.g. no advancement, slow advancement or pulsation.
In this case proceed as follows:

5.1) To purge air bubbles from hydraulic circuit

a – Hold tool upright in a vice with handles open (Fig. 6).
b – Unscrew the main handle (04) from the body (13) to expose the rubber oil reservoir (03).
c – Remove reservoir cap (02).
d – Operate moveable handle (36) several times, in order to advance the ram (16).
e – Press the pressure release lever (44) to retract the ram (16), discharge oil pressure from the circuit and return all oil to the reservoir.
f – Repeat points (**d - e)** five times, to ensure all air bubbles in the hydraulic circuit are purged into the reservoir.
g – Remove all air from reservoir.
If the oil level is low, top up as directed in paragraph **5.2.**
h – Fit reservoir cap (02).
i – Assemble main handle (04) to tool body.

If the tool continues to malfunction, return the tool for service/repair as detailed in § **6**.

5.2) Oil top up

Every six months check the oil level in the reservoir. If necessary, top up the oil level to the top lip of the reservoir and remove all air from the reservoir, **see 5.1**, points **a**, **b**, **c**, and **e**, finally, complete with operations **h** and **i**.

Always use clean recommended oil, see § 1.
Do not use old or recycled oil.
Do not use hydraulic brake fluid.

⚠ ***Ensure that disposal of used oil is in accordance with current legislation.***

6. RETURN TO **Cembre** FOR OVERHAUL

In the case of a breakdown contact our Area Agent who will advise you on the problem and give you the necessary instructions on how to dispatch the tool to our nearest service Centre; if possible, attach a copy of the Test Certificate supplied by **Cembre** together with the tool or fill in and attach the form available in the "ASSISTANCE" section of the **Cembre** website.

FIG. 1

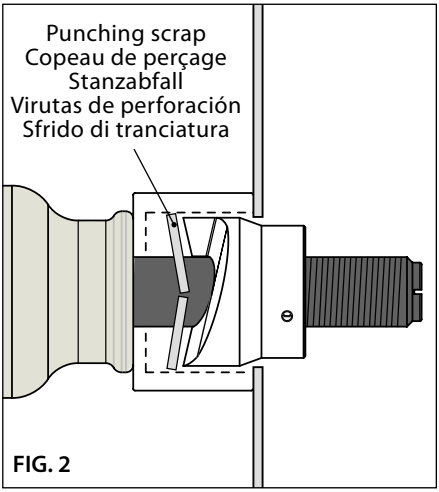


FIG. 2

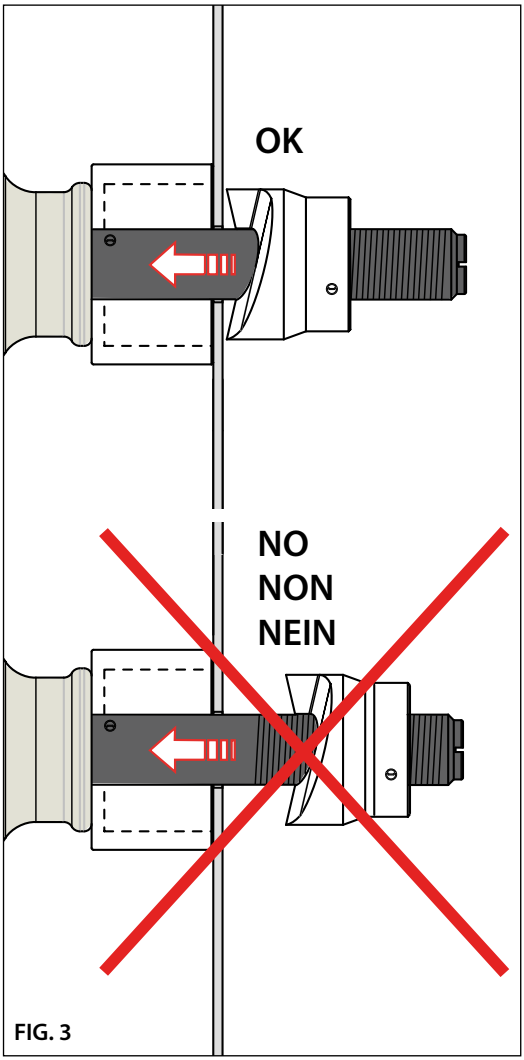


FIG. 3

FIG. 4

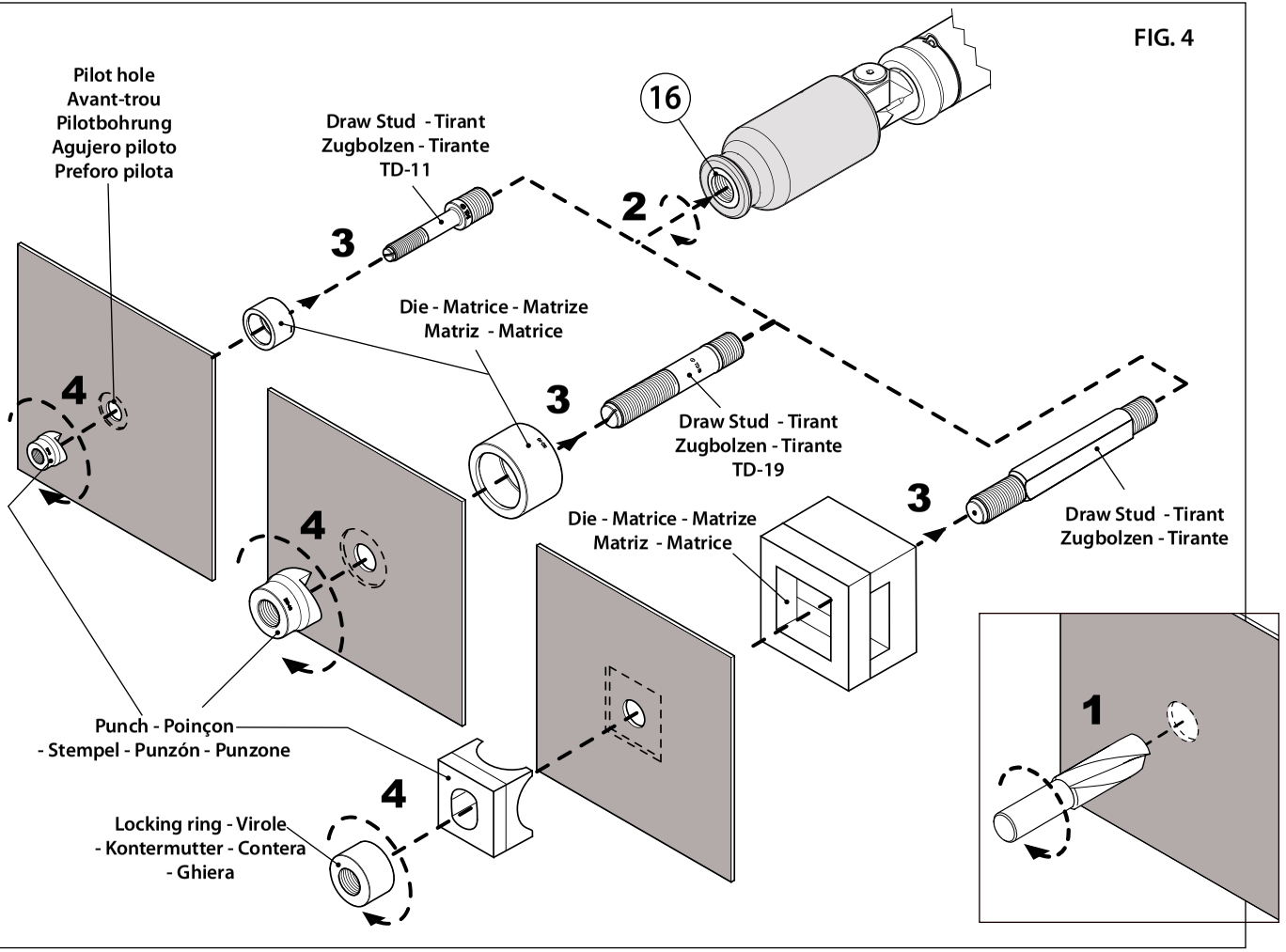
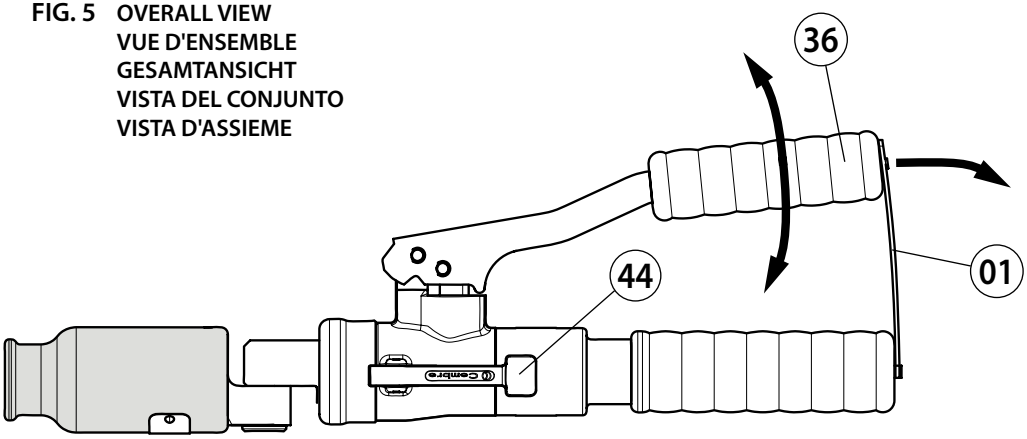

Pilot hole
Avant-trou
Pilotbohrung
Agujero piloto
Preforo pilota
Draw Stud - Tirant
Zugbolzen - Tirante
TD-11
16
2
3
Die - Matrice - Matrize
Matriz - Matrice
4
3
Draw Stud - Tirant
Zugbolzen - Tirante
TD-19
Die - Matrice - Matrize
Matriz - Matrice
3
Draw Stud - Tirant
Zugbolzen - Tirante
4
Punch - Poinçon
- Stempel - Punzón - Punzone
4
Locking ring - Virole
- Kontermutter - Contera
- Ghiera
1

FIG. 5 **OVERALL VIEW**
VUE D'ENSEMBLE
GESAMTANSICHT
VISTA DEL CONJUNTO
VISTA D'ASSIEME



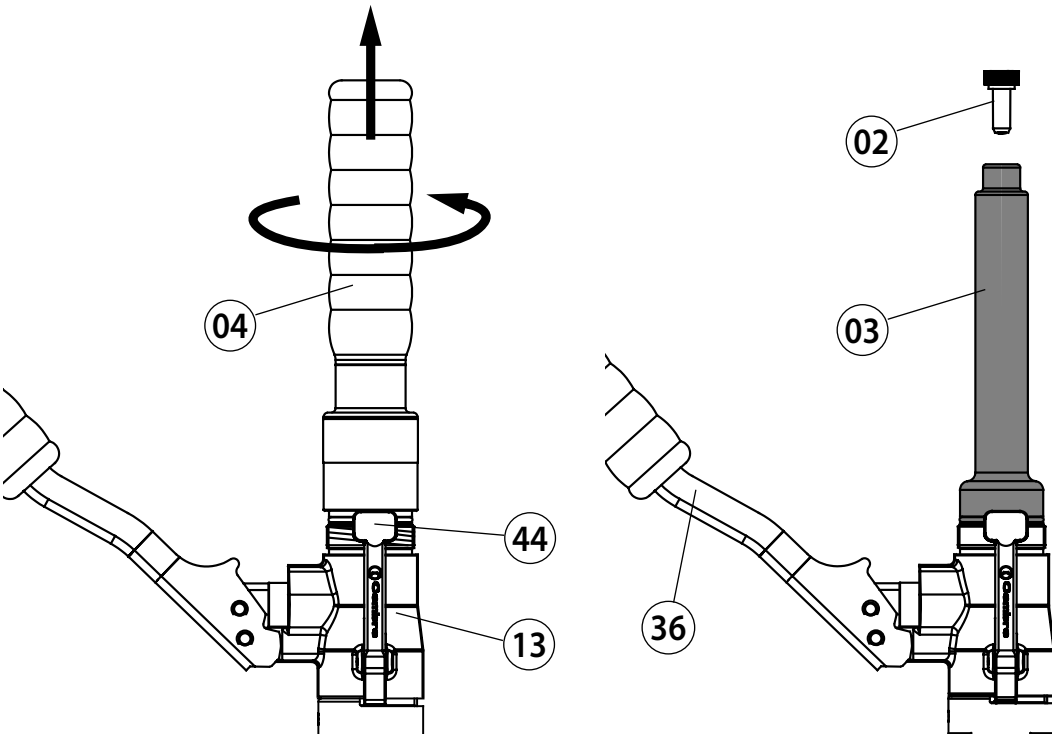


FIG. 6 **TOOL POSITION FOR MAINTENANCE OPERATIONS**
POSITION DE L'OUTIL POUR L'ENTRETIEN
WERKZEUG WARTUNGSPOSITION
COLOCACIÓN PARA LAS OPERACIONES DE MANTENIMIENTO
POSIZIONAMENTO PER LE OPERAZIONI DI MANUTENZIONE

PUNCH, DIE & ACCESSORIES GUIDE - GUIDE POUR LA SELECTION DES ACCESSOIRES - AUSWAHL DER STANZWERKZEUGE - GUIA PARA LA SELECCIÓN DE LOS ACCESORIOS - GUIDA PER LA SCELTA DEGLI ACCESSORI

TABLE 1 - TABLEAU 1 - TABELLE 1 - TABLA 1 - TABELLA 1

Hole dimension - Dimension trou - Lochabmessungen - Dimensión agujero - Dimensione foro			Material - Matériel - Materiale		Code N° - N° Code - Art.-Nr. N° Código - N° Codice			Draw Stud - Tirant - Zugbolzen - Tirante
Nominal Nominalmass Nominale		Pg ISO INCH	Max thickness Max. epaisseur Max. Stärke Espesor max. Spessore max. (mm)		KIT (X + Y)	Punch Poinçon (X) Stempel Punzón Punzone	Die Matrice (Y) Matrize Matriz Matrice	
Ø (mm)	Ø (Inch)							
15,5	.610	Pg 9			RD 15.5SS	P-RD15.5SS	M-RD15.5SS	
16,2	.638	ISO-16			RD 16.2SS	P-RD16.2SS	M-RD16.2SS	
17,0	.669	3/8"			RD 17SS	P-RD17SS	M-RD17SS	
17,5	.689	-			RD 17.5SS	P-RD17.5SS	M-RD17.5SS	
18,8	.740	Pg 11			RD 18.8SS	P-RD18.8SS	M-RD18.8SS	
19,1	.752	-			RD 19.1SS	P-RD19.1SS	M-RD19.1SS	
20,5	.807	Pg 13,5 ISO-20			RD 20.5SS	P-RD20.5SS	M-RD20.5SS	TD-11
21,5	.846	1/2"			RD 21.5SS	P-RD21.5SS	M-RD21.5SS	
22,6	.890	Pg 16			RD 22.6SS	P-RD22.6SS	M-RD22.6SS	
23,8	.937	5/8"			RD 23.8SS	P-RD23.8SS	M-RD23.8SS	
25,4	1.000	ISO-25			RD 25.4SS	P-RD25.4SS	M-RD25.4SS	
27,0	1.063	3/4"			RD 27SS	P-RD27SS	M-RD27SS	
28,5	1.122	Pg 21			RD 28.5SS	P-RD28.5SS	M-RD28.5SS	
30,5	1.201	7/8"			RD 30.5SS	P-RD30.5SS	M-RD30.5SS	
28,5	1.122	Pg 21			RD 28.5SS-19	P-RD28.5SS-19	M-RD28.5SS-19	
30,5	1.201	7/8"			RD 30.5SS-19	P-RD30.5SS-19	M-RD30.5SS-19	
31,8	1.252	-			RD 31.8SS	P-RD31.8SS	M-RD31.8SS	
32,5	1.279	ISO-32			RD 32.5SS	P-RD32.5SS	M-RD32.5SS	
34,0	1.338	1"	2,5	3,5	RD 34SS	P-RD34SS	M-RD34SS	
34,6	1.362	-			RD 34.6SS	P-RD34.6SS	M-RD34.6SS	
37,2	1.464	Pg 29			RD 37.2SS	P-RD37.2SS	M-RD37.2SS	
38,1	1.500	-			RD 38.1SS	P-RD38.1SS	M-RD38.1SS	
38,5	1.515	1"1/8			RD 38.5SS	P-RD38.5SS	M-RD38.5SS	
40,5	1.594	ISO-40			RD 40.5SS	P-RD40.5SS	M-RD40.5SS	
41,3	1.626	-			RD 41.3SS	P-RD41.3SS	M-RD41.3SS	
42,5	1.673	1"1/4			RD 42.5SS	P-RD42.5SS	M-RD42.5SS	
43,2	1.701	-			RD 43.2SS	P-RD43.2SS	M-RD43.2SS	TD-19
44,5	1.752	-			RD 44.5SS	P-RD44.5SS	M-RD44.5SS	
47,2	1.858	Pg 36			RD 47.2SS	P-RD47.2SS	M-RD47.2SS	
48,5	1.909	1"1/2			RD 48.5SS	P-RD48.5SS	M-RD48.5SS	
50,5	1.988	ISO-50			RD 50.5SS	P-RD50.5SS	M-RD50.5SS	
54,2	2.134	Pg 42 1"3/4			RD 54.2SS	P-RD54.2SS	M-RD54.2SS	
60,0	2.362	Pg 48 2"			RD 60SS	P-RD60SS	M-RD60SS	
60,5	2.382	-			RD 60.5SS	P-RD60.5SS	M-RD60.5SS	
64,0	2.520	ISO-63			RD 64SS	P-RD64SS	M-RD64SS	
65,0	2.559	-			RD 65SS	P-RD65SS	M-RD65SS	
76,0	2.992	2"1/2			RD 76SS	P-RD76SS	M-RD76SS	
76,5	3.012	-	2,5	3	RD 76.5SS	P-RD76.5SS	M-RD76.5SS	
80,5	3.169	-			RD 80.5SS	P-RD80.5SS	M-RD80.5SS	
89,0	3.503	-			RD 89SS	P-RD89SS	M-RD89SS	
90,0	3.543	-			RD 90SS	P-RD90SS	M-RD90SS	
100,0	3.937	-	2	3	RD 100SS	P-RD100SS	M-RD100SS	
102,0	4.016	-			RD 102SS	P-RD102SS	M-RD102SS	TD-28.5*
114,0	4.488	-	2	2,5	RD 114SS	P-RD114SS	M-RD114SS	
120,0	4.724	-	1,5	2	RD 120SS	P-RD120SS	M-RD120SS	

(*) Supplied with the KIT - Fournie avec le KIT - Im Lieferumfang des KIT - En dotación con el KIT - In dotazione al KIT

Stainless steel - acier inox - Nichtrostendem Stahl - acero inox - acciaio inox
Rm = 700 N/mm² max.

Mild steel - acier doux - Weichstahl - acero dulce - acciaio dolce
Rm = 510 N/mm² max.

TABLE 2 - TABLEAU 2 - TABELLE 2 - TABLA 2 - TABELLA 2

	Hole dimension - Dimension trou - Lochabmessungen - Dimensión agujero - Dimensione foro		Material - Matériel - Materiale		Code N°- N° Code - Art.-Nr. - N° Código - N° Codice	Pilot hole - Avant-trou - Pilotbohrung - Orificio piloto - Preforo pilota
	Nominal Nominalmass Nominale		Max thickness - Max. epaisseur Max. Stärke - Espesor max. Spessore max. (mm)			
	(mm)	(Inch)			KIT	
	21,0 x 21,0	.827 x .827	**2,5**	**3,5**	**RD 21x21**	ø 12 mm
	46,0 x 46,0	1.811 x 1.811	**2**	**3**	**RD 46x46**	ø 22.5 mm
	68,0 x 68,0	2.677 x 2.677	**1,5**	**2**	**RD 68x68**	
	92,0 x 92,0	3.622 x 3.622	**1,5**	**2**	**RD 92x92**	
	126,0 x 126,0	4.960 x 4.960	**1,5**	**2**	**RD 126x126**	ø 28.5 mm
	138,0 x 138,0	5.433 x 5.433	**1**	**1,5**	**RD 138x138**	
	18,0 x 46,0	.709 x 1.811	**2,5**	**3,5**	**RD 18x46**	ø 16.5 mm
	22,0 x 46,0	.866 x 1.811	**2**	**3**	**RD 22x46**	
	35,0 x 86,0	1.377 x 3.385	**2**	**3**	**RD 35x86**	
	35,0 x 112,0	1.377 x 4.409	**2**	**2,5**	**RD 35x112**	
	36,0 x 46,0	1.417 x 1.811	**2**	**3**	**RD 36x46**	ø 22.5 mm
	37,0 x 54,0	1.456 x 2.125	**2**	**2,5**	**RD 37x54**	ø 16.5 mm
	37,0 x 67,0	1.456 x 2.637	**2**	**2,5**	**RD 37x67**	
	37,0 x 88,0	1.456 x 3.464	**1,5**	**2,5**	**RD 37x88**	ø 26.5 mm
	37,0 x 104,0	1.456 x 4.094	**1,5**	**2,5**	**RD 37x104**	
	46,0 x 54,0	1.811 x 2.126	**2**	**2,5**	**RD 46x54**	ø 22.5 mm
	46,0 x 72,0	1.811 x 2.835	**1,5**	**2,5**	**RD 46x72**	
	46,0 x 107,0	1.811 x 4.212	**1,5**	**2**	**RD 46x107**	
	67,0 x 126,0	2.638 x 4.960	**1,5**	**2**	**RD 67x126**	ø 28.5 mm

Stainless steel - acier inox - Nichtrostendem Stahl - acero inox - acciaio inox
Rm = 700 N/mm² max.

Mild steel - acier doux - Weichstahl - acero dulce - acciaio dolce
Rm = 510 N/mm² max.

TABLE 3 - TABLEAU 3 - TABELLE 3 - TABLA 3 - TABELLA 3

Code N° - N° Code - Art.-Nr. - N° Código - N° Codice	PUNCH & DIE - POINÇONS ET MATRICES TYPE - STEMPEL UND MATRIZEN TYP - PUNZONES Y MATRICES TIPO - PUNZONI E MATRICI	Pilot hole - Avant-trou - Pilotbohrung - Orificio piloto - Preforo pilota
KIT TRD-9,4C (*)	**GREENLEE 3/8" - 24 UNF**	ø 9.7 mm
KIT TRD-M11C (*)	**IMB, BM, COSMEC (M11x1.5)**	ø 11.5 mm
TD-M16C	**IMB, BM, COSMEC (M16x1.5)**	ø 16.5 mm or ou oder o KIT RD17.5SS

(*) The washer supplied with the KIT must be threaded onto the draw stud and positioned between the head and the die to allow the die to rest correctly.
(*) La rondelle fournie avec le KIT doit être enfilée sur le tirant et placée entre la tête et la matrice pour permettre un appui correct de la matrice.
(*) Der im Lieferumfang mitgelieferte Ring muss auf den Zugbolzen geschoben und zwischen dem Kopf und Matrize positioniert werden. Damit wird das ordnungsgemäße Anliegen der Matrize gewährleistet.
(*) La arandela en dotación con el KIT se debe introducir en el tirante y colocar entre la cabeza y la matriz para permitir un apoyo correcto de la matriz.
(*) La rondella in dotazione al KIT deve essere infilata sul tirante e posizionata fra la testa e la matrice per permettere un corretto appoggio della matrice stessa.

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cod. 6261332