

EUROPEAN STANDARD

EN 2608

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English Version

Aerospace series - Installation and removal requirements for 8° 30' adaptors, threaded, with lockring

Série aérospatiale - Spécification de montage et de
démontage des raccords à implanter à 8° 30' à bague de
sécurité

Luft- und Raumfahrt - Ein- und Ausbaubedingungen für
gerade Einschraubverschraubungen 8° 30' mit
Sicherungsring

This European Standard was approved by CEN on 28 October 2005.

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Foreword

This European Standard (EN 2608:2005) has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of AECMA, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2006, and conflicting national standards shall be withdrawn at the latest by June 2006.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies the installation and removal requirements for adaptors, threaded, with lockring for pipe couplings 8°30' according to EN 2603.

This standard establishes an accurate procedure of adaptor installation, removal and reinstallation to ensure the repeatability of the installation operation and to ensure the effective compliance to sealing and locking requirements.

The adaptor shown on all figures of this standard is given as an example for the 8°30' interface according to EN 2604.

This procedure is used for adaptors 8°30', for nominal pressure up to 28 000 kPa to install the adaptors according to EN 3248, EN 3270 and EN 3566.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5855-1, *Aerospace — MJ threads — Part 1: General requirements*

ISO 5855-3, *Aerospace — MJ threads — Part 3: Limit dimensions for fluid systems*

EN 2435-01, *Aerospace series — Paints and varnishes — Corrosion resistant chromated two component cold curing primer — Part 01: Minimum requirements*

EN 2602, *Aerospace series — Ports for adaptors, threaded, with lockring — Geometric configuration*

EN 2603, *Aerospace series — Port ends for adaptors, threaded, with lockring — Geometric configuration*

EN 2604, *Aerospace series — 8°30' interface for adaptors, threaded, with lockring — Geometric configuration*

EN 2645, *Aerospace series — Lockrings for adaptors, threaded, with lockring — Dimensions*

EN 3248, *Aerospace series — Pipe coupling 8°30' in titanium alloy — Adaptors, reduced pipe end, with lockring*

EN 3270, *Aerospace series — Pipe coupling 8°30' in titanium alloy — Blanking plugs with lockring*

EN 3566, *Aerospace series — Pipe coupling 8°30' in titanium alloy — Adaptors with lockring*

EN 3663, *Aerospace series — Pipe coupling — O-rings in rubber NBR, 75 IRHD — Temperature range: –55 °C to +135 °C*

MIL-H-5606, *Hydraulic fluid, petroleum base; aircraft, missile and ordnance*¹⁾

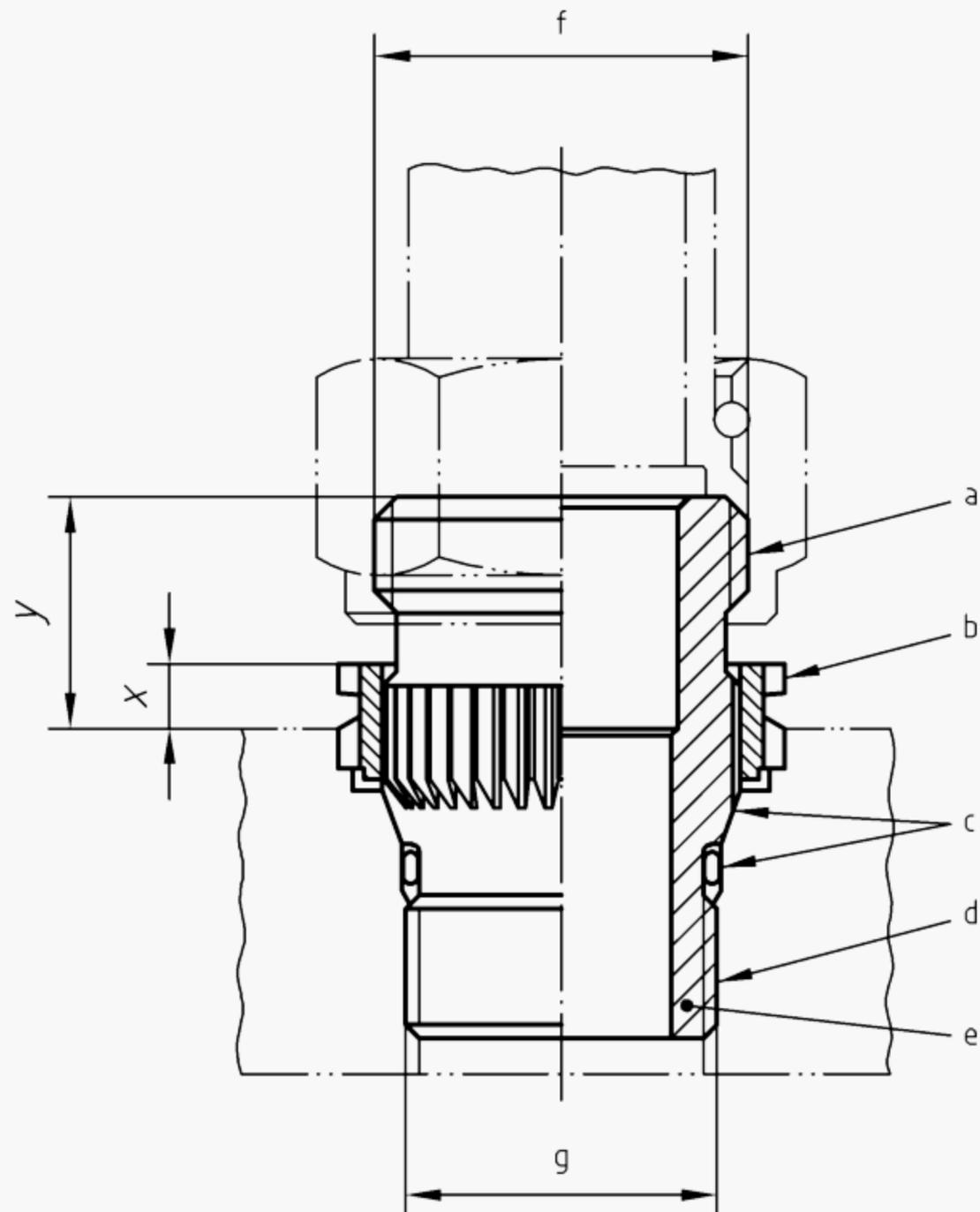
MIL-H-83282, *Hydraulic fluid, fire resistant, synthetic hydrocarbon base, metric, NATO number H-537*¹⁾

MIL-H-87257, *Hydraulic fluid, fire resistant, low temperature, synthetic hydrocarbon base, aircraft and missile*¹⁾

1) Published by: Department of Defence (DOD), the Pentagon, Washington, D.C. 20301.

3 Installation instructions

3.1 Engineering information



- a The adaptor according to EN 3566 is used in the 8°30' coupling system with an interface according to EN 2604.
- b The lockring according to EN 2645 prevents the adaptor from rotating in the port and also avoids port damage at tubing installation due to torquing.
- c Seal is metal to metal and O-ring according to EN 3663.
NOTE This seal is only compatible with hydraulic fluids such as MIL-H-5606, MIL-H-83282 and MIL-H-87257.
- d Tapped hole (boss port side) for the 8°30' adaptor installation according to EN 2602.
- e Port side interface of the adaptor according to EN 2603.
- f Thread A
- g Thread B

Figure 1

Comparison of numbers for Rosan and AECMA parts see Annex A.

Table 1 — General information

Dimensions in millimetres

8°30' coupling Code ^a	Adaptor Part No. EN	Port dimension code	Thread A ^b 4g6g	Thread B ^b 4h6h	O-ring Part No. EN	x max.	y ± 0,50
05	3566-0605	077	MJ10 × 1	MJ6 × 1	3663A0045	3,2	10,80
06	3566-0806	098	MJ12 × 1,25	MJ8 × 1	3663A0060	3,65	12,75
08	3566-1008	125	MJ14 × 1,5	MJ10 × 1	3663A0080	4,10	15,00
10	3566-1210	136	MJ16 × 1,5	MJ12 × 1,25	3663A0095	4,10	15,00
12	3566-1412	153	MJ18 × 1,5	MJ14 × 1,5	3663A0112	4,10	15,00
14	3566-1614	170	MJ20 × 1,5	MJ16 × 1,5	3663A0132	4,10	15,20
16	3566-1816	192	MJ22 × 1,5	MJ18 × 1,5	3663A0150	4,10	15,20
18	3566-2018	214	MJ24 × 1,5	MJ20 × 1,5	3663A0170	4,10	15,00
20	3566-2220	231	MJ27 × 1,5	MJ22 × 1,5	3663A0190	4,10	15,60
22	3566-2422	253	MJ30 × 1,5	MJ24 × 1,5	3663A0212	4,10	15,60
25	3566-2725	295	MJ33 × 1,5	MJ27 × 1,5	3663A0236	4,10	16,00
28	3566-3028	320	MJ36 × 1,5	MJ30 × 1,5	3663A0265	4,10	16,00
32	3566-3332	350	MJ39 × 1,5	MJ33 × 1,5	3663A0300	4,10	16,00

^a Corresponds to the pipe nominal outside diameter.

^b According to ISO 5855-3, except MJ6 × 1. MJ6 × 1 according to ISO 5855-1.

3.2 Port preparation

The manufacturing sequence of port preparation is for information only.

Qualification of the assembly is required for each manufacturing sequence and type of tool for a given port material installation method and nominal pressure.

The hole shall conform to EN 2602, using the applicable tools for

- tap drilling
- port machining
- serration broaching
- thread cutting

NOTE The design office may specify a hole without serration pre-broaching, when low resistance material is used.

3.2.1 Tap drilling

See Figure 2.

Drill through or to a depth as required in Table 2.

Table 2 — Port drilling

Dimensions in millimetres

8°30' coupling Code ^a	Port dimension code	d_1 + 0,076 0	d_2 min.	d_3 min.	l_1^b	l_2^c
05	077	5,065	17,05	2,5	17,00	19,00
06	098	7,065	19,05	4,4	18,10	20,10
08	125	9,065	21,60	6,1	19,40	21,40
10	136	10,821	24,15	7,7	20,725	23,225
12	153	12,576	26,55	9,0	21,95	24,95
14	170	14,576	27,95	10,7	22,65	25,65
16	192	16,576	29,85	12,5	23,25	26,25
18	214	18,576	33,05	14,2	24,95	27,95
20	231	20,576	36,60	15,9	25,65	28,65
22	253	22,576	38,85	17,6	26,45	29,45
25	295	25,576	42,45	20,2	27,45	30,45
28	320	28,576	46,00	22,8	28,45	31,45
32	350	31,576	48,25	25,4	29,45	32,45

^a Corresponds to the pipe nominal outside diameter.

^b $l_1 = l_6 + 2,5 \cdot \text{pitch}$ (for hand tap)

^c $l_2 = l_6 + 4,5 \cdot \text{pitch}$ (for machining tap)

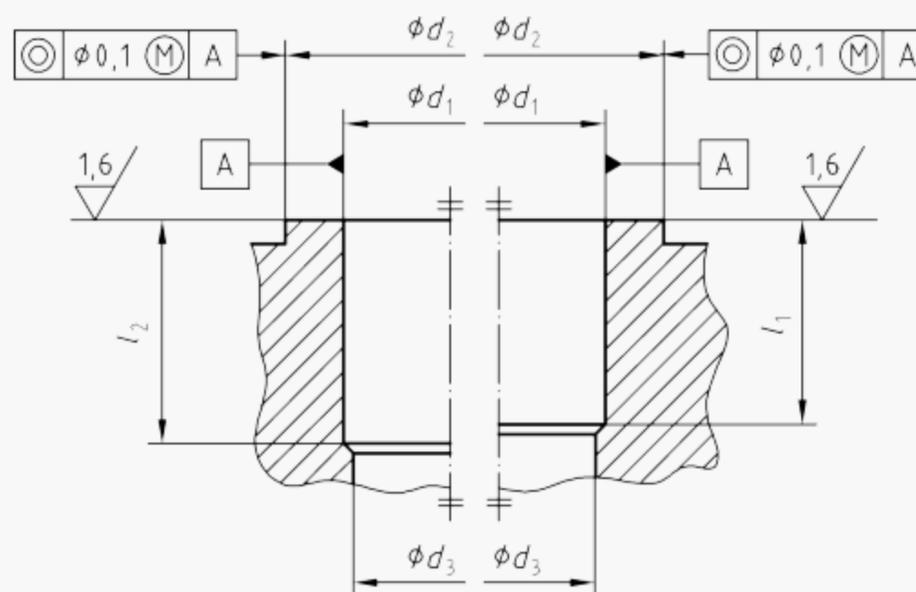


Figure 2

3.2.2 Port machining

The port machining shall be made in accordance with EN 2602.

Special porting tools may be used as shown in Figure 3 and Table 3.

Table 3 — Porting tool

Dimensions in millimetres

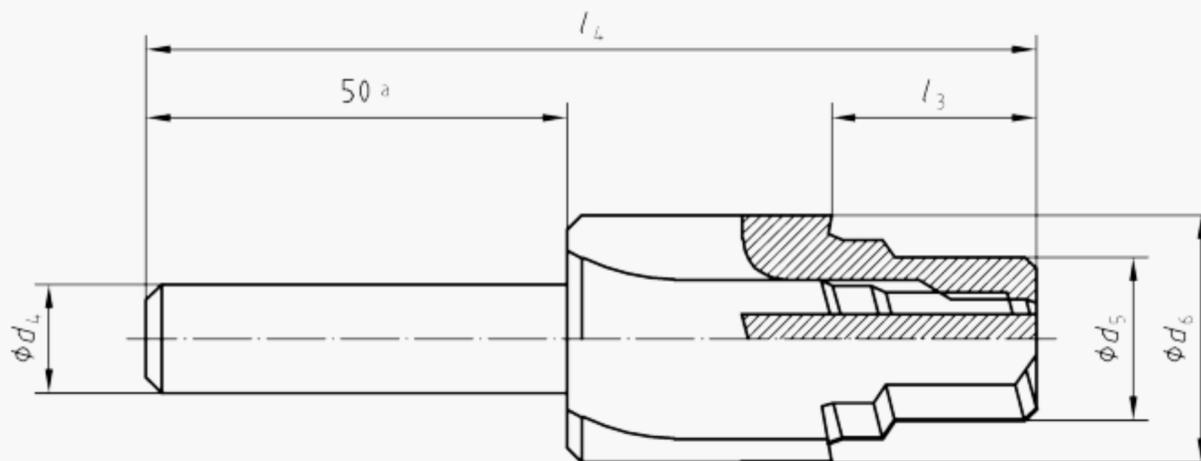
8°30' coupling Code ^a	Port dimension code	Tool Part No. ^b EN	d_4^c 0 - 0,008	d_5 ± 0,013	d_6 ± 0,008	l_3 ± 0,15	l_4^c ± 0,75
05	077	2608PT077	9,995	5,103	12,030	16,13	101,6
06	098	2608PT098	9,995	7,103	14,040	16,93	86,8
08	125	2608PT125	9,995	9,103	17,060	17,68	87,5
10	136	2608PT136	14,995	10,860	18,660	18,38	88,2
12	153	2608PT153	14,995	12,614	20,240	19,03	94,6
14	170	2608PT170	14,995	14,614	21,840	19,68	95,6
16	192	2608PT192	14,995	16,614	25,420	21,09	97,3
18	214	2608PT214	24,995	18,614	27,070	22,79	105,3
20	231	2608PT231	24,995	20,614	29,380	23,49	106,0
22	253	2608PT253	24,995	22,614	32,560	25,67	108,2
25	295	2608PT295	24,995	25,614	36,060	26,72	109,3
28	320	2608PT320	24,995	28,614	39,690	27,72	116,6
32	350	2608PT350	24,995	31,614	42,080	28,72	117,6

^a Corresponds to the pipe nominal outside diameter.

^b PT: Porting Tool. This tool counterbores, countersinks, provides a radius and produces a tap drill diameter in one pass. Contours are ground to ensure concentricity. Cutter geometry and material permit the use of this tool with most common materials.

^c For information only

Dimensions in millimetres



^a For information only

Figure 3

3.2.3 Serration broaching

Broaching shall be made according to EN 2602. Special broaching tool can be used as shown in Figure 4 and Table 4. In this case the following procedure shall apply:

- 1) Prior to broaching, the cutter teeth will rest on the surface of the boss and the body of the tool will be free to move up and down. Note that the nut should be backed away from the body of the tool.
- 2) The tool may be hand-held or used under a press.
- 3) Locate broaching tool pilot into the port.
- 4) Slowly apply a force to the mandrel while holding the body to allow the teeth to broach into the parent material counterbore.
- 5) Broaching is complete when the external shoulder of the mandrel contacts the internal shoulder in the body.
- 6) The installation force is then relieved and the tool is ready for removal.
- 7) To remove the tool from the boss, turn the nut in clockwise direction against the body and the mandrel will move the cutter up, away from the port counterbore.

Table 4 — Serration tool

Dimensions in millimetres

8°30' coupling Code ^a	Port dimension code	Tool Part No. ^b EN	d_7^c $\pm 0,4$	d_8 Ref.	l_5^c Ref.	$s_1^{c,d}$ h13	t_1^c $+ 0,40$ 0
05	077	2608BT077	21,3	5,04	136,0	22	1,95
06	098	2608BT098	21,3	7,04	137,3	22	2,35
08	125	2608BT125	23,3	9,04	140,6	24	2,75
10	136	2608BT136	26,3	10,80	140,9	27	2,75
12	153	2608BT153	29,3	12,55	140,9	30	2,75
14	170	2608BT170	29,3	14,55	141,6	30	2,75
16	192	2608BT192	35,2	16,55	142,1	36	2,75
18	214	2608BT214	35,2	18,55	142,4	36	2,75
20	231	2608BT231	40,2	20,55	143,4	41	2,75
22	253	2608BT253	40,2	22,55	143,4	41	2,75
25	295	2608BT295	45,2	25,55	143,4	46	2,75
28	320	2608BT320	49,2	28,55	143,4	50	2,75
32	350	2608BT350	54,2	31,55	143,4	55	2,75

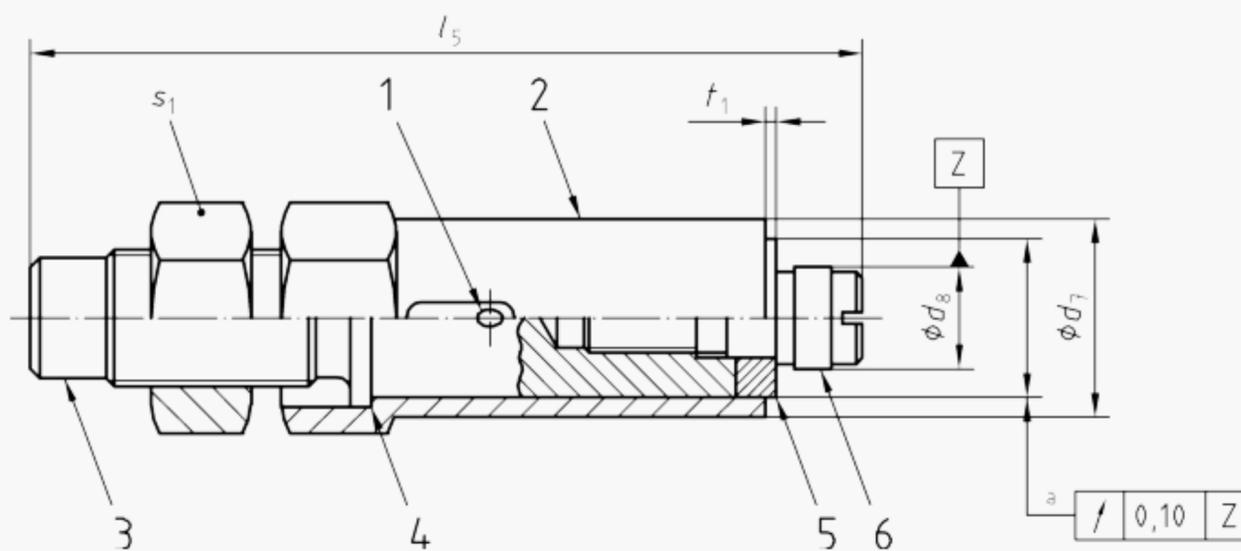
^a Corresponds to the pipe nominal outside diameter.

^b BT: Broaching Tool, cutter geometry and material permit the use of the most common materials with a maximum hardness of 32 HRC. Replacement or spare cutters may be purchased individually.

^c For information only

^d Across flats

Dimensions in millimetres



Key

- 1 Spiral pin
- 2 Body
- 3 Mandrel
- 4 Shoulders in contact
- 5 Cutter
- 6 Pilot

^a Noted runout and the controlled minor diameter of EN 2602 port will result in a permissible maximum runout of 0,23 mm between the serration major diameter and the controlled thread diameter after broaching.

Figure 4

3.2.4 Thread cutting

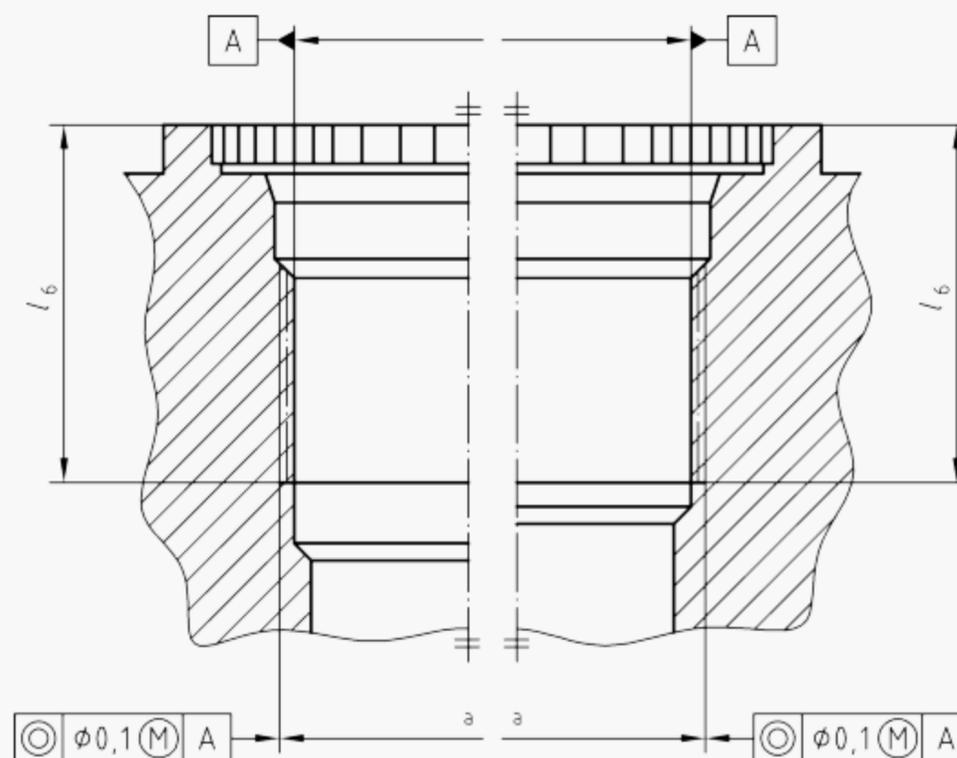
Using the correct tool tap the port to at least the minimum full thread depth l_6 specified (see Table 5 and Figure 5). Remove all chips, burrs, cutting fluids etc., from the threads and the cut area.

Table 5 — Adapter port side thread

Dimensions in millimetres

8°30' coupling Code ^a	Port dimension code	Thread ^b 4H5H	l_6 0 -0,30
05	077	MJ6 × 1	14,50
06	098	MJ8 × 1	15,60
08	125	MJ10 × 1	16,90
10	136	MJ12 × 1,25	17,60
12	153	MJ14 × 1,5	18,20
14	170	MJ16 × 1,5	18,90
16	192	MJ18 × 1,5	19,50
18	214	MJ20 × 1,5	21,20
20	231	MJ22 × 1,5	21,90
22	253	MJ24 × 1,5	22,70
25	295	MJ27 × 1,5	23,70
28	320	MJ30 × 1,5	24,70
32	350	MJ33 × 1,5	25,70

^a Corresponds to the pipe nominal outside diameter.
^b According to ISO 5855-3, except MJ6 × 1. MJ6 × 1 according to ISO 5855-1.



^a Thread

Figure 5

3.3 Adaptor installation

3.3.1 O-ring installation

O-ring shall slide over the thread of the port side of the adaptor by using the applicable tools as shown in Figure 6 and Table 6. O-ring damage is not accepted. The O-ring and the tool shall be lubricated with the system fluid, or a lubricant compatible with all other system components. Check that O-ring is not twisted and is properly seated in the groove of the adaptor before removing the tool.

Table 6 — O-ring installation tool

Dimensions in millimetres

8°30' coupling Code ^a	O-ring Part No. EN 3663	O-ring installation Tool Part No. ^b	Adaptor port side thread ^c	d_9	d_{10}	d_{11}	l_7	l_8
				max.	min.	max.	min.	+ 1,25 - 0,25
05	A0045	2608OT06	MJ6 × 1	7,80	6,05	4,25	17,5	5,60
06	A0060	2608OT08	MJ8 × 1	9,80	8,05	5,70	19,5	6,10
08	A0080	2608OT10	MJ10 × 1	11,80	10,05	7,70	20,5	6,85
10	A0095	2608OT12	MJ12 × 1,25	13,80	12,05	9,10	23,0	7,60
12	A0112	2608OT14	MJ14 × 1,5	15,80	14,05	10,80	24,0	8,15
14	A0132	2608OT16	MJ16 × 1,5	17,80	16,05	12,75	25,0	8,90
16	A0150	2608OT18	MJ18 × 1,5	19,80	18,05	14,30	27,0	9,40
18	A0170	2608OT20	MJ20 × 1,5	21,90	20,05	16,25	28,0	10,15
20	A0190	2608OT22	MJ22 × 1,5	23,90	22,05	18,25	28,5	10,90
22	A0212	2608OT24	MJ24 × 1,5	25,90	24,05	20,45	28,5	11,45
25	A0236	2608OT27	MJ27 × 1,5	29,00	27,05	22,85	32,0	12,45
28	A0265	2608OT30	MJ30 × 1,5	32,00	30,05	25,70	33,5	13,45
32	A0300	2608OT33	MJ33 × 1,5	35,00	33,05	29,20	33,0	14,50

^a Corresponds to the pipe nominal outside diameter.
^b OT: O-ring Installation Tool depends on thread dimension.
^c According to ISO 5855-3, except MJ6 × 1. MJ6 × 1 according to ISO 5855-1.

Material:
 Polytetrafluoroethylene
 (PTFE)

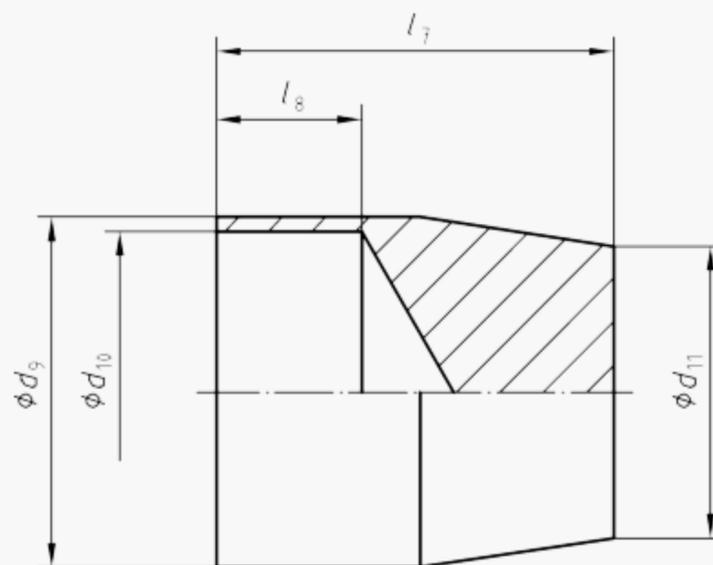


Figure 6

3.3.2 Adaptor installation into boss port

A combination wrench and drive tool according to Figure 8 and Table 7 should be used to install the adaptor and the lockring into the boss port.

3.3.2.1 The hole and the thread of the port side of the adaptor shall be lubricated with the system fluid, or a lubricant compatible with all other system components. Scratches, dents or rough spots are not allowed in O-ring contact area and the sealing cone area on the adaptor or in the port.

3.3.2.2 The thread of the port side of the adaptor shall be inserted into the boss by hand using a clockwise rotation until the adaptor is seated. To avoid possible O-ring damage, the adaptor should not be rotated in a counterclockwise direction.

3.3.2.3 Using the applicable drive tool according to Table 7 to engage the serration of the tool with those on the external serrations of the adaptor lockring as shown in Figure 7a. Place a torque wrench of the proper size over the hex of the wrench and apply a torque equal to the minimum value specified in Table 8.

3.3.2.4 When prebroaching is already made, note the relationship of the serrations of the lockring with respect to the prebroached serrations in the port. If they match, proceed to 3.3.2.6. If the serrations do not match the prebroached serrations in the port, continue to slowly torque the adaptor until the serrations of the lockring match the boss serrations, without exceeding the maximum torque value according to Table 8. This will normally take between 3° and 8° of turning and the maximum value need not be reached if serrations align themselves prior to that value. Do not exceed maximum torque value.

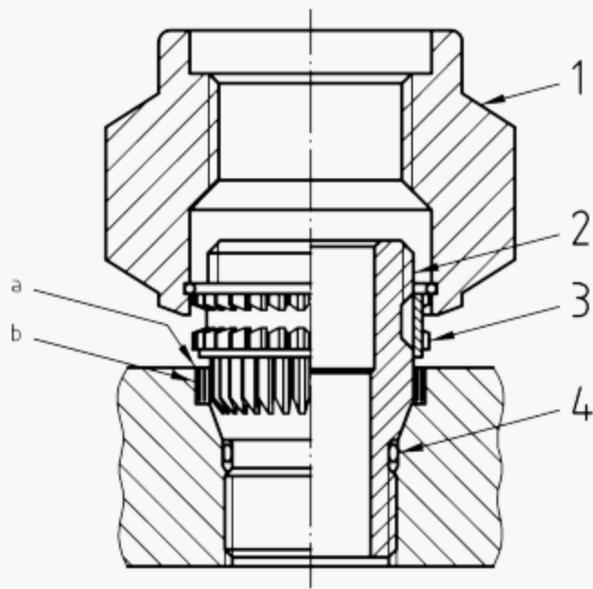
3.3.2.5 For installation on low resistance material, when no prebroaching is required, a mean torque between minimum and maximum values shall be applied according to Table 8.

3.3.2.6 Apply enough zinc chromate primer, e.g. according to EN 2435-01 with a brush or small syringe to the counterbore area of the boss and below the adaptor lockring so that primer will be extruded out between external serrations of the lockring and the serrations in the port when lockring is installed.

NOTE Installing design document may specify no primer or sealant in place of or in addition to zinc chromate according to materials and user manufacturing process.

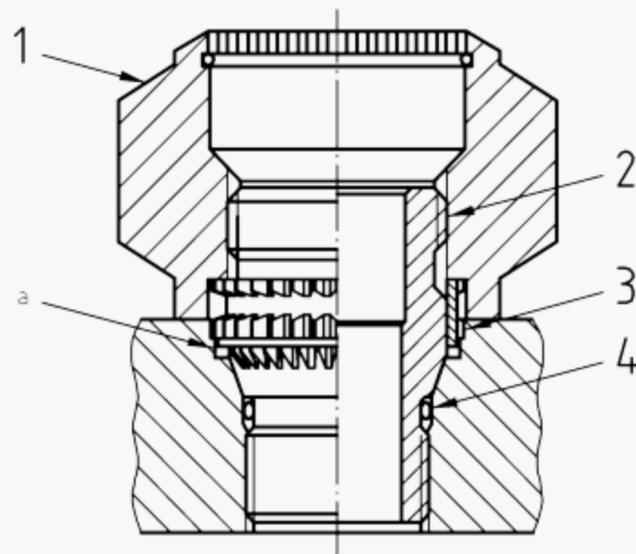
3.3.2.7 For adaptor lockring installation, use the applicable drive tool according to Figure 7b, with an axial load in the direction of the port in order to conform with the maximum value x according to Table 1. If the thread of the adaptor is used for this operation, the torque applied to install the lockring shall be less than maximum installation torque of the coupling swivel nut given by the design office, to avoid port damage

3.3.2.8 Proof pressure test has to be applied during qualification and after final assembly of the equipment. The qualification should also require further tests, e.g. impulse fatigue test.



- Key**
- 1 Combination drive and wrench tool
 - 2 Adaptor
 - 3 Lockring
 - 4 O-Ring
- a Port
- b Apply zinc chromate according to 3.3.2.6

Figure 7a — Adaptor installation



- Key**
- 1 Combination drive and wrench tool
 - 2 Adaptor
 - 3 Lockring
 - 4 O-ring
- a Port

Figure 7b — Lockring installation

Table 7 — Combination drive and wrench tool

Dimensions in millimetres

8°30' coupling Code ^a	Port thread ^b		Tool Part No. ^c EN	Port dimension code	d_{12}^d ± 0,40	d_{13} ± 0,25	$e^{d,e}$	l_9 + 0,18 - 0,05	l_{10}^d ± 0,50	$s_2^{d,f}$ h13	Serration Number of teeth
	4H5H	Code									
05	MJ10 × 1	1010	2608DW1010077	077	19,80	13,35	25,4	3,05	29,50	22	23
06	MJ12 × 1,25	1212	2608DW1212098	098	21,70	15,20	27,7	3,50	32,50	24	27
08	MJ14 × 1,5	1415	2608DW1415125	125	24,80	18,25	31,2	3,95	37,10	27	31
10	MJ16 × 1,5	1615	2608DW1615136	136	26,40	19,95	34,6	3,95	37,10	30	40
12	MJ18 × 1,5	1815	2608DW1815153	153	27,90	21,45	34,6	3,95	37,10	30	38
14	MJ20 × 1,5	2015	2608DW2015170	170	29,50	23,05	37,0	3,95	36,60	32	40
16	MJ22 × 1,5	2215	2608DW2215192	192	33,40	26,90	41,6	3,95	37,60	36	38
18	MJ24 × 1,5	2415	2608DW2415214	214	35,00	28,50	47,3	3,95	37,60	41	43
20	MJ27 × 1,5	2715	2608DW2715231	231	37,20	30,65	47,3	3,95	38,10	41	46
22	MJ30 × 1,5	3015	2608DW3015253	253	40,70	34,20	53,1	3,95	38,10	46	36
25	MJ33 × 1,5	3315	2608DW3315295	295	44,10	37,60	53,1	3,95	38,10	46	47
28	MJ36 × 1,5	3615	2608DW3615320	320	48,00	41,50	57,7	3,95	38,10	50	32
32	MJ39 × 1,5	3915	2608DW3915350	350	50,10	43,60	63,5	3,95	38,10	55	53

^a Corresponds to the pipe nominal outside diameter.

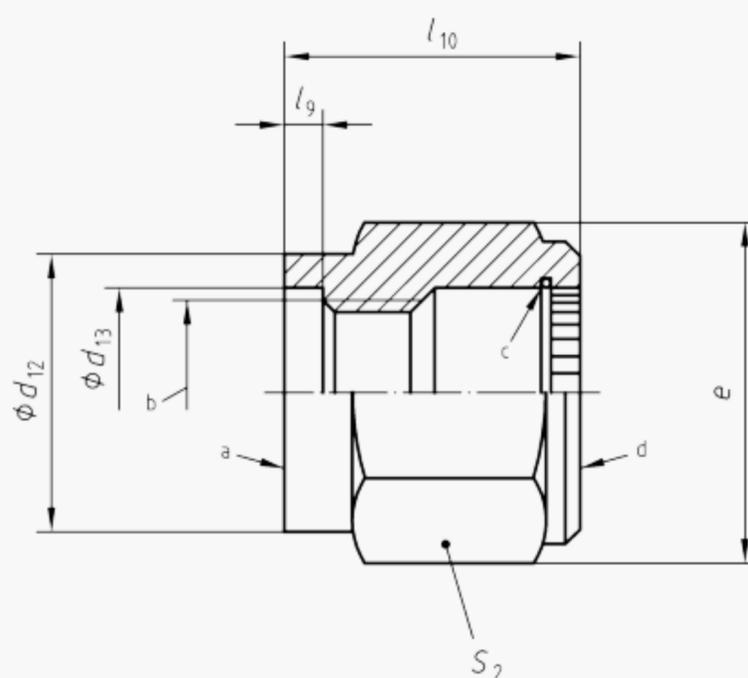
^b According to ISO 5855-3

^c DW: Combination Drive and Wrench Tool

^d For information only

^e Across corners

^f Across flats



^a (Thread side) Dimension shall be according to adaptor thread interface.

^b Thread

^c Spring wire stop in groove

^d (Serration side) Dimensions shall be according to adaptor locking interface.

Figure 8

Table 8 — Installation torque, axial load and shear area

Dimensions in millimetres

8°30' coupling Code ^a	Tool Part No. ^b EN	Port dimension code	Installation torque Nm		Shear Engagement area ^c min.	Axial load on adaptor 112 MPa Burst pressure ^d
			min.	max.	mm ²	N
05	2608DW1010077	077	5,0	6,0	43,23	4 843
06	2608DW1212098	098	9,0	12,0	69,35	7 740
08	2608DW1415125	125	20,0	24,0	102,12	11 412
10	2608DW1615136	136	34,0	40,0	135,12	15 119
12	2608DW1815153	153	48,0	56,0	169,92	19 034
14	2608DW2015170	170	58,0	66,5	219,12	24 503
16	2608DW2215192	192	69,0	78,0	274,53	30 760
18	2608DW2415214	214	82,0	91,5	337,55	37 728
20	2608DW2715231	231	98,0	108,0	406,05	45 447
22	2608DW3015253	253	106,0	117,0	479,76	53 710
25	2608DW3315295	295	120,0	132,0	603,67	67 543
28	2608DW3615320	320	137,0	152,0	741,78	83 068
32	2608DW3915350	350	159,0	177,0	894,10	100 079

^a Corresponds to the pipe nominal outside diameter.
^b DW: Combination Drive and Wrench tool
^c Minimum shear engagement area shown is the assembled dimensional value for the overall engaged area of mating port threads (port threads full depth of adaptor). It does not represent a dimension of either of the members in an unassembled condition. (For information only)
^d The boss material at maximum operating temperature shall have a shear strength of 112 MPa for 28 MPa system pressure to resist burst pressure. (For information only)

4 Replacement instructions

The replacement tools given in 4.1 to 4.3 are for information only.

4.1 Lockring removal

4.1.1 If a sealant has been used to cover lockring, carefully remove sealant to expose lockring.

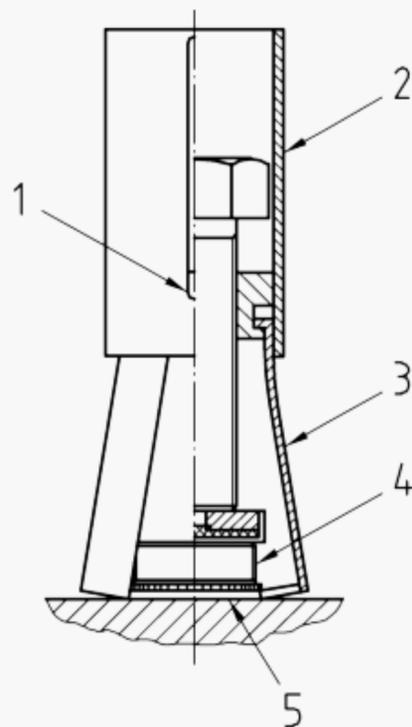
4.1.2 Select the applicable size lockring removal tool from Table 9 and Figure 10.

If the thread of the adaptor is used for this operation, the torque shall be less than the maximum installation torque. Port damage shall be avoided. Caution shall be taken to avoid damage of sealing interface and thread of the adaptor.

4.1.3 For lockring removal the bolt shall be unscrewed up to the top of the tool, prior to engage the two puller halves into the lockring groove (see Figure 9a).

4.1.4 Push sleeve down over the two puller halves by hand (see Figure 9b).

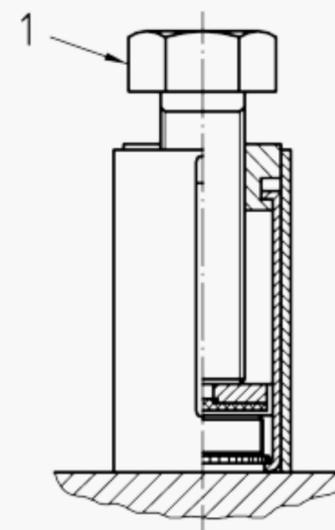
4.1.5 Screw bolt down to remove lockring.



Key

- 1 Pin
- 2 Sleeve
- 3 Puller-half
- 4 Adaptor
- 5 Lockring groove

Figure 9a — Sleeve retracted, puller half ready to engage the lockring groove



Key

- 1 Bolt

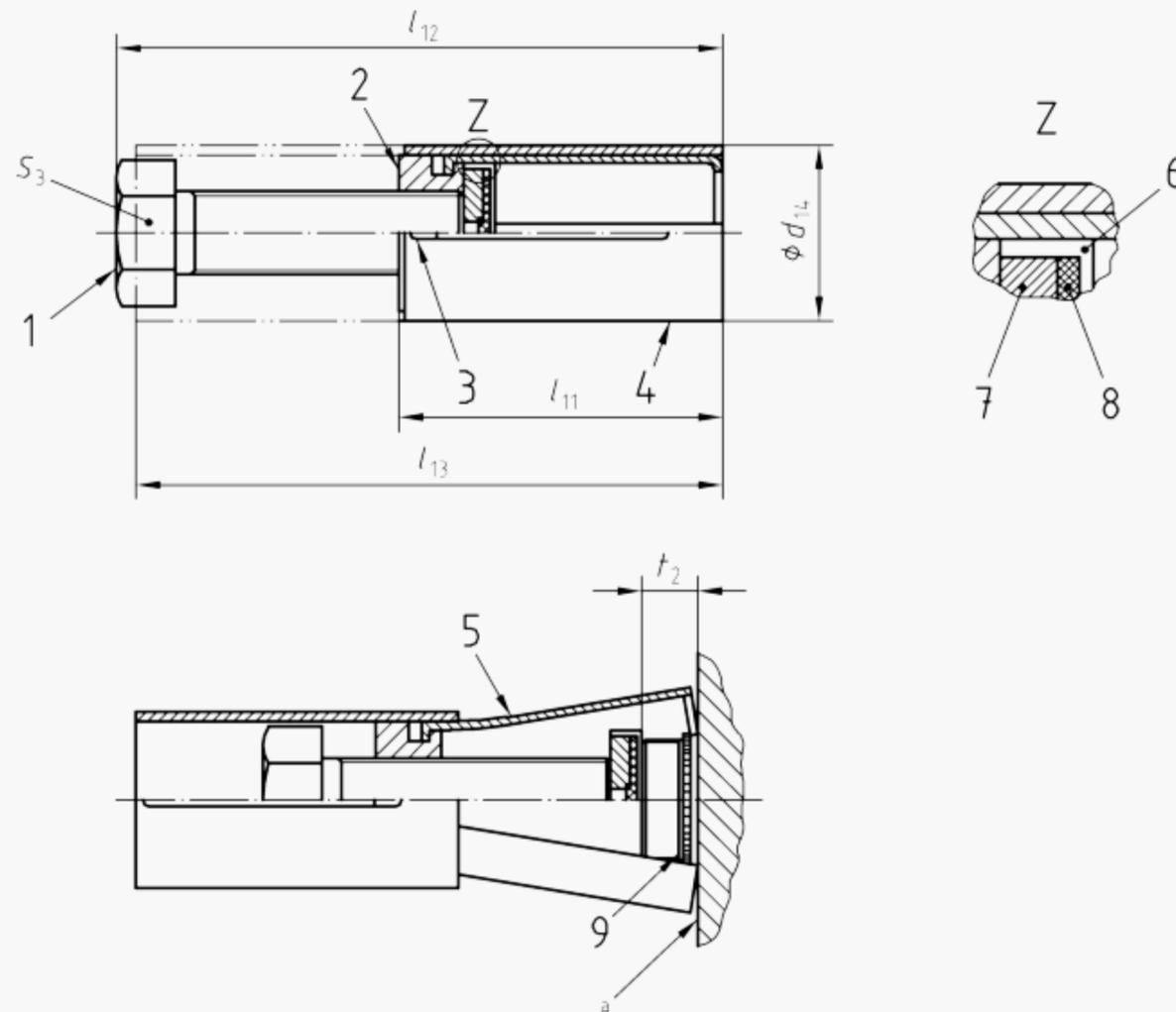
Figure 9b — Sleeve over, puller half ready for torquing of bolt

Table 9 — Lockring removal tool

Dimensions in millimetres

8°30' coupling Code ^a	Port dimension code	Tool Part No. ^b EN	d_{14}^c	l_{11}^c	l_{12}^c	l_{13}^c	$s_3^{c,d}$ h13	$t_2^{c,e}$	
			max.	max.	max.	max.		min.	max.
05	077	2608RT077	20,45	57,7	98,5	101,6	10	6,0	37,0
06	098	2608RT098	22,73	58,0	100,5	102,8	13	7,0	37,5
08	125	2608RT125	26,16	62,8	110,5	112,1	17	8,0	42,0
10	136	2608RT136	28,07	66,1	117,5	118,3	19	8,0	44,0
12	153	2608RT153	29,84	67,4	119,5	120,5	19	8,0	45,0
14	170	2608RT170	31,75	68,8	122,0	123,6	19	8,0	46,5
16	192	2608RT192	35,81	72,3	129,5	129,7	24	8,0	48,0
18	214	2608RT214	37,72	74,6	134,0	134,8	24	8,0	50,5
20	231	2608RT231	40,39	76,5	141,0	138,5	30	8,0	52,5
22	253	2608RT253	44,20	82,7	148,5	148,1	30	8,0	54,0
25	295	2608RT295	48,51	84,9	153,5	152,4	32	8,0	56,0
28	320	2608RT320	52,83	87,9	159,5	158,1	32	8,0	59,0
32	350	2608RT350	54,86	92,1	167,5	166,2	32	8,0	63,0

- ^a Corresponds to the pipe nominal outside diameter.
- ^b RT: Lockring Removal Tool
- ^c For information only
- ^d Across flats
- ^e Stand-off range that removal tool will accommodate, used for 8°30' coupling.

**Key**

- 1 Bolt
- 2 Body
- 3 Set screw
- 4 Sleeve
- 5 Puller half
- 6 Non metallic pad
- 7 Steel pad
- 8 Washer
- 9 Lockring

a Parent material surface

Figure 10

4.2 Adaptor removal

4.2.1 Select the proper size wrench tool given for example in Table 7. Engage the serrations of the wrench tool with those of the adapter lockring as shown in Figure 7a. Place a torque wrench of the proper size over the hex of the wrench tool and apply a torque in a counterclockwise direction to totally disengage the adaptor from the boss port.

4.2.2 Apply the available procedure to clean the port to avoid contamination of the fluid system.

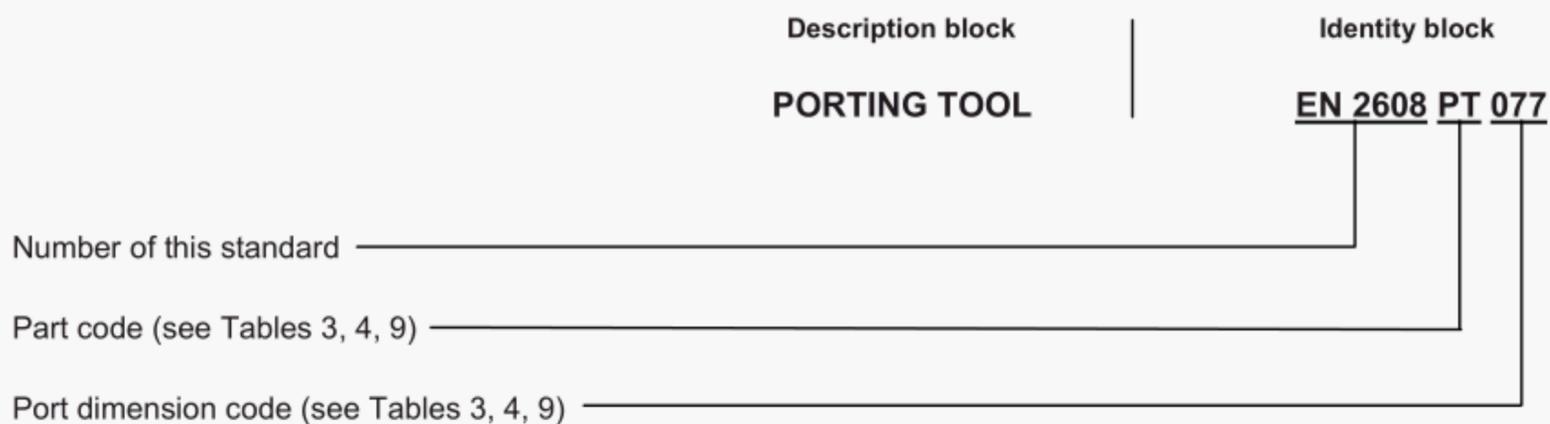
4.2.3 Apply the available procedure to close or plug the port to avoid contamination of the fluid system if an adaptor is not immediately reinstalled.

4.3 Adaptor reuse

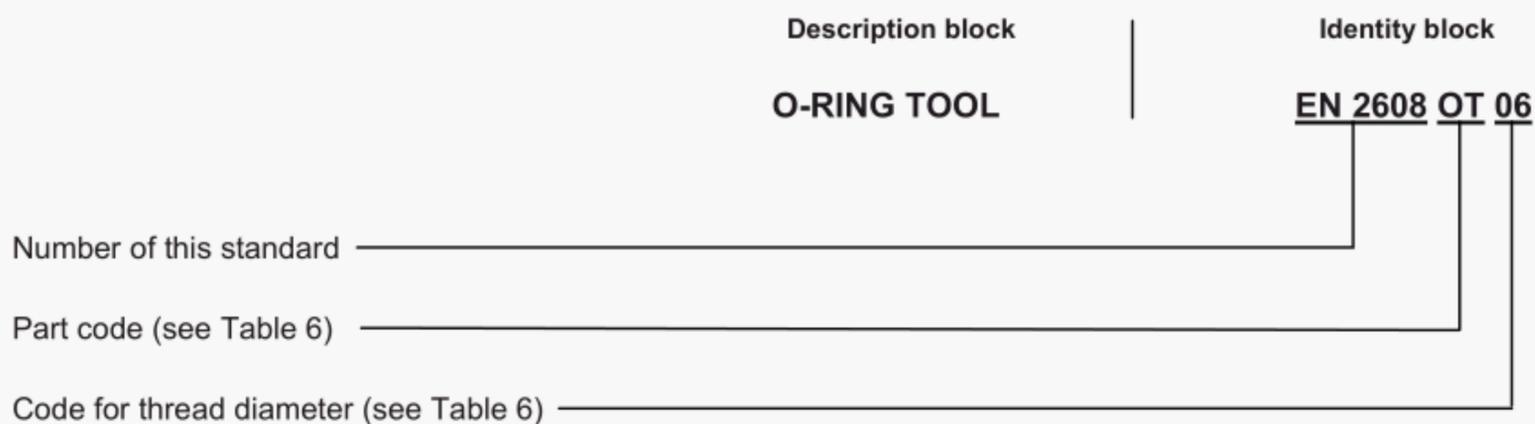
The adaptor shall not be reused without a new O-ring.

5 Designation

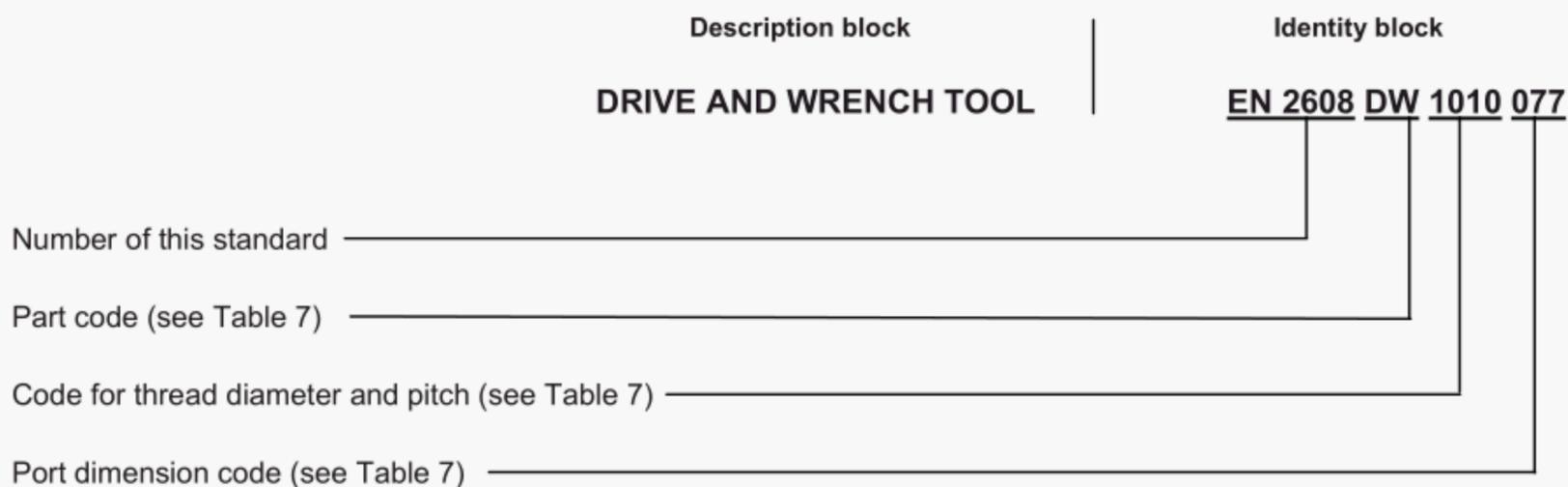
EXAMPLE 1



EXAMPLE 2



EXAMPLE 3



Annex A (informative)

Comparison of numbers for Rosan and AECMA parts

See Tables A.1, A.2 and A.3.

Table A.1

8°30' coupling Code ^a	Port dash No. EN 2602	Porting Tool Part No.		Broaching Tool Part No.		Lockring Removal Tool Part No.	
		AECMA	Rosan	AECMA	Rosan	AECMA	Rosan
		EN 2608		EN 2608		EN 2608	
05	-077	PT077	RPTM077	BT077	RFMOPB077	RT077	RFM077LPDE
06	-098	PT098	RPTM098	BT098	RFMOPB098	RT098	RFM098LPDE
08	-125	PT125	RPTM125	BT125	RFMOPB125	RT125	RFM125LPDE
10	-136	PT136	RPTM136	BT136	RFMOPB136	RT136	RFM136LPDE
12	-153	PT153	RPTM153	BT153	RFMOPB153	RT153	RFM153LPDE
14	-170	PT170	RPTM170	BT170	RFMOPB170	RT170	RFM170LPDE
16	-192	PT192	RPTM192	BT192	RFMOPB192	RT192	RFM192LPDE
18	-214	PT214	RPTM214	BT214	RFMOPB214	RT214	RFM214LPDE
20	-231	PT231	RPTM231	BT231	RFMOPB231	RT231	RFM231LPDE
22	-253	PT253	RPTM253	BT253	RFMOPB253	RT253	RFM253LPDE
25	-295	PT295	RPTM295	BT295	RFMOPB295	RT295	RFM295LPDE
28	-320	PT320	RPTM320	BT320	RFMOPB320	RT320	RFM320LPDE
32	-350	PT350	RPTM350	BT350	RFMOPB350	RT350	RFM350LPDE

^a Corresponds to the pipe nominal outside diameter.

Table A.2

Dimensions in millimetres

8°30' coupling Code ^a	Thread	O-Ring Installation Tool Part No.	
	Port End	AECMA	Rosan
	EN 2602	EN 2608	
05	MJ6 × 1	OT06	ORTM0610
06	MJ8 × 1	OT08	ORTM0810
08	MJ10 × 1	OT10	ORTM1010
10	MJ12 × 1,25	OT12	ORTM1212
12	MJ14 × 1,5	OT14	ORTM1415
14	MJ16 × 1,5	OT16	ORTM1615
16	MJ18 × 1,5	OT18	ORTM1815
18	MJ20 × 1,5	OT20	ORTM2015
20	MJ22 × 1,5	OT22	ORTM2215
22	MJ24 × 1,5	OT24	ORTM2415
25	MJ27 × 1,5	OT27	ORTM2715
28	MJ30 × 1,5	OT30	ORTM3015
32	MJ33 × 1,5	OT33	ORTM3315

^a Corresponds to the pipe nominal outside diameter.

Table A.3

Dimensions in millimetres

8°30' coupling Code ¹⁾	Port dash No. EN 2602	Thread Nut End	Combination Drive and Wrench Tool Part No.	
			AECMA EN 2608	Rosan RFM
05	-077	MJ10 × 1	DW1010077	077-1010 DW
06	-098	MJ12 × 1,25	DW1212098	098-1212 DW
08	-125	MJ14 × 1,5	DW1415125	125-1415 DW
10	-136	MJ16 × 1,5	DW1615136	136-1615 DW
12	-153	MJ18 × 1,5	DW1815153	153-1815 DW
14	-170	MJ20 × 1,5	DW2015170	170-2015 DW
16	-192	MJ22 × 1,5	DW2215192	192-2215 DW
18	-214	MJ24 × 1,5	DW2415214	214-2415 DW
20	-231	MJ27 × 1,5	DW2715231	231-2715 DW
22	-253	MJ30 × 1,5	DW3015253	253-3015 DW
25	-295	MJ33 × 1,5	DW3315295	295-3315 DW
28	-320	MJ36 × 1,5	DW3615320	320-3615 DW
32	-350	MJ39 × 1,5	DW3915350	350-3915 DW

^a Corresponds to the pipe nominal outside diameter.