NATO STANDARD

AEP-4155

CBRN PROTECTIVE MASK AND FILTER CANISTER SCREW THREADS

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NATO LETTER OF PROMULGATION

6 February 2019

1. The enclosed Allied Engineering Publication, AEP-4155, Edition A, Version 1, CBRN PROTECTIVE MASK AND FILTER CANISTER SCREW THREADS, which has been approved by the nations in the NATO Army Armaments Group, is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 4155.

2. AEP-4155, Edition A, Version 1, is effective upon receipt.

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RECORD OF RESERVATIONS

CHAPTER	RECORD OF RESERVATION BY NATIONS
Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.	

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RECORD OF SPECIFIC RESERVATIONS

[nation]	[detail of reservation]
Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.	

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CBRN PROTECTIVE MASK AND FILTER CANISTER SCREW THREADS

CONTENTS

1. INTRODUCTION

Although the operating CBRN environment continues to evolve away from the apocalyptic nature of the Cold War into a more pervasive and irregular threat based in diverse theatres of operation keeping a high interoperability of personal CBRN protective equipment of NATO forces, especially when operating in multinational units, remains to be a key issue of mission success.

1.1 SCOPE

The aim of this standard is to provide full mechanical interchangeability between CBRN Protective Masks and Filter Canisters for NATO forces irrespective of national origin of masks and canisters. The scope of this document is limited to the connection of canisters to respirators.

This standard is intended for use by NATO armed forces

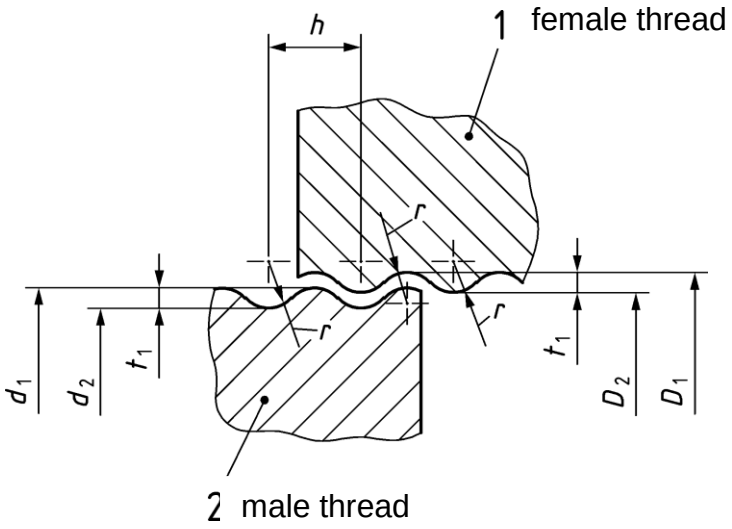
Participating nations agree to equip the CBRN protective masks and filter canister with a rolled thread RD 40 x 3.63 mm.

It is agreed within NATO, to retain the ability to use an RD 40 mm threaded canister in extremis on all negative pressure air purifying devices. However, NATO recognizes alternative connectors (e.g. bayonet joints) between the mask and the canister have been developed and can be used alternatively. NATO members using these connectors confirm to equip at least the mask with the ability to convert the joint into an RD 40 x 3.63 mm (female) thread. The conversion of alternative joints into an RD 40 joint needs to be performable. The requirements regarding tightness and protection factor according to AEP-71 and AEP-73 are to be achievable.

2. STATEMENT IN DETAIL

2.1 It is agreed to equip CBRN protective mask and filter canister with a rolled thread RD 40 x 3.63 mm (RD 40 x 3.63, EN 148-1, Part 1, Draft 2017), as described thereinafter.

2.2 PROFILE OF THREAD



Thread	Male thread			Female thread			Pitch	No. of threads per 25,4 mm	Thread height	Radius
	Major diameter		Minor diameter	Major diameter		Minor diameter	h		t1	r
	d1		d2	D1	D2			z		
	max.	min.	max.	min.	min.	max.				
⌀ 40x1/7	40,00	39,70	38,40	40,16	38,56	38,86	3,629	7	0,8	1,225

All dimensions in Millimeters.
For information only: Details refer to EN 148-1, Part 1.
For information: Thread ring and plug gauges see chapter 3.

2.3 CONNECTIONS, DIMENSIONS

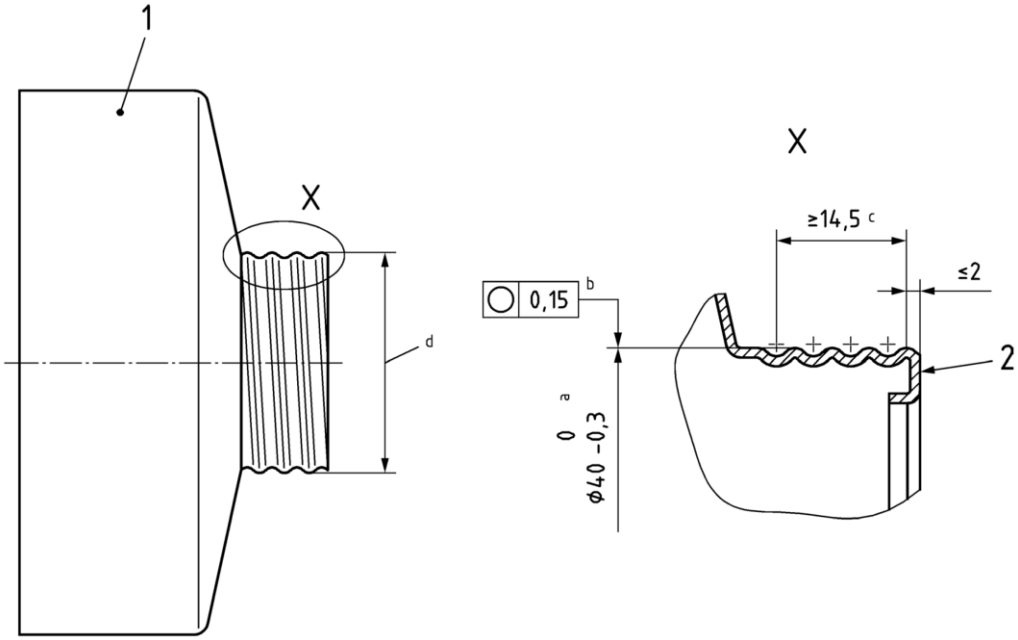
Rolled thread connections, consisting of the male part of the rolled thread (A) and of the female part (B) are used primarily for breathing protection apparatus the

action of which is dependent on the ambient air. The female thread is fixed to the face piece.

The design need not correspond to the graphic representation, but the dimensions indicated are to be adhered to.

Rolled thread connection

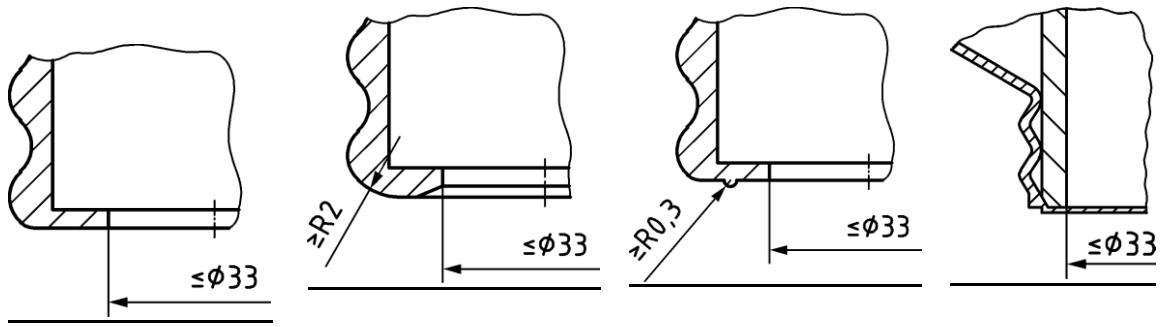
Male (A)



Male thread connector, Ref.: ISO 17420-3

Key

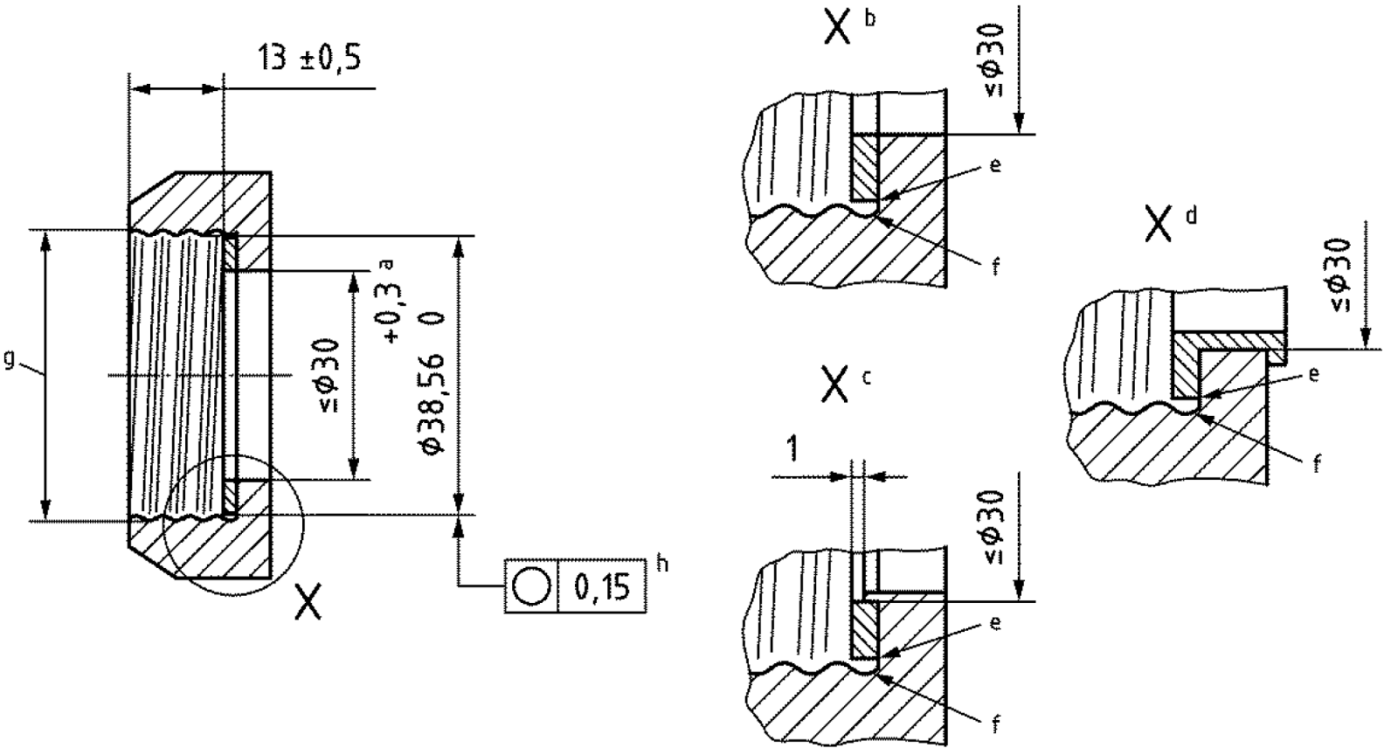
1	Filter
2	sealing surface
a	Major diameter.
b	Reference to radius.
c	Effective thread.
d	Thread ø40 mm x 1/7”., Ref.: ISO 17420-3



a) flat sealing surface | b) rounded sealing surface | c) raised sealing surface | d) socket sealing surface

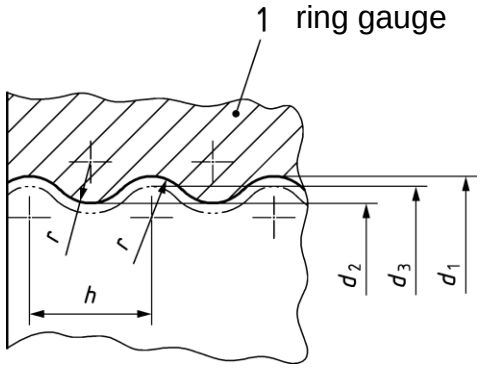
Sealing surface of the male thread connector Ref.: EN 148-1

Female (B)



Female thread connector, Ref.: ISO 17420-3

3. SPECIFICATION FOR THREAD GAUGES (for information)



Dimensions of GO gauge for male thread connector

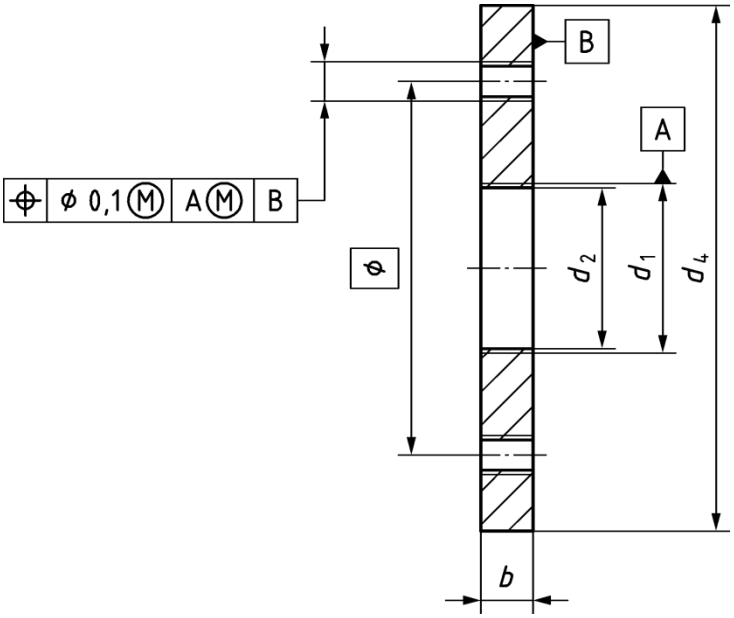
Dimensions in millimetres

Thread	GO gauge							
	d_1	$d_{1\,w}$ [a]	d_2	$d_{2\,w}$ [a]	h	r	d_4	b
⌀ 40x1/7	$40^{+0,04}_{+0,02}$	$40^{0}_{+0,05}$	$38,40^{+0,04}_{+0,02}$	$38,40^{0}_{+0,05}$	$3,629^{\pm 0,009}$	1,225	$120^{+0,50}$	12,5
[a] Diameter including permissible degradation due to wear and tear.								

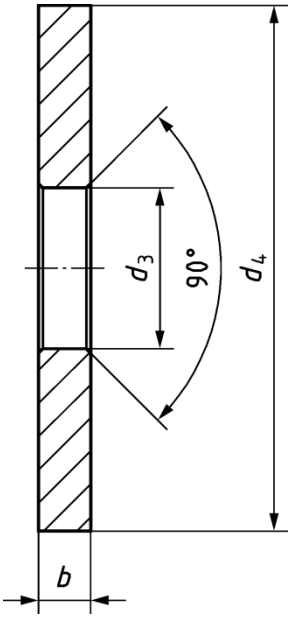
Dimensions of NO-GO gauge for male thread connector

Dimensions in millimetres

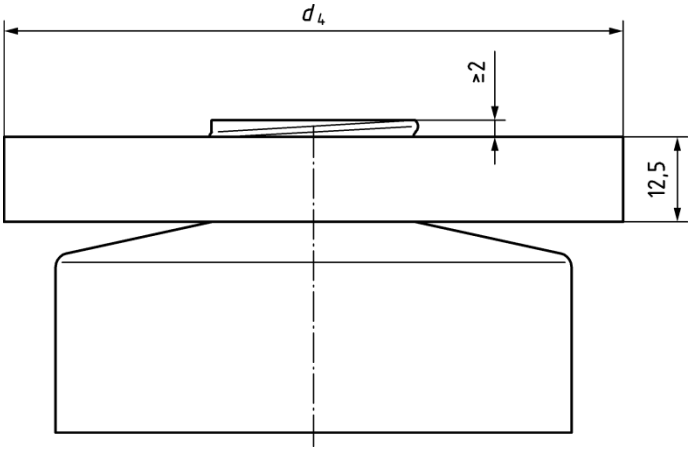
Thread	NO-GO gauge		
	d_3	d_4	b
⌀ 40x1/7	$39,70^{-0,02}_{-0,03}$	$120^{+0,50}$	$12,5^{+0,50}$



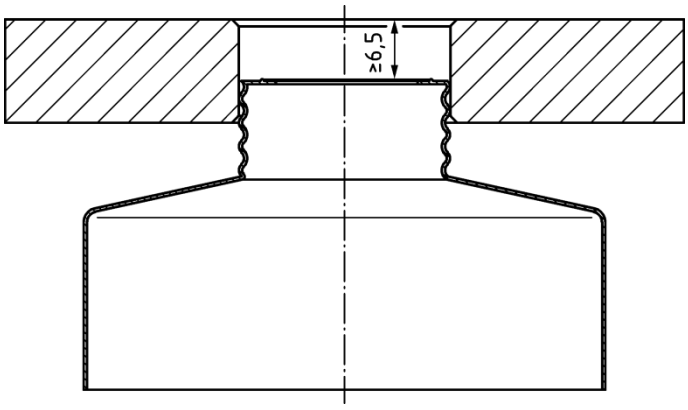
GO ring gauge



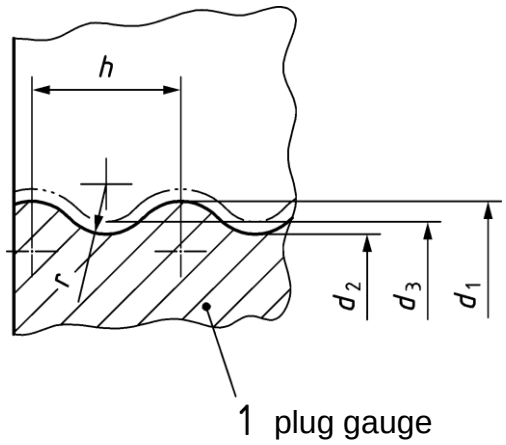
NO-GO ring gauge



Without using excessive force, screw the GO gauge onto the male thread connector, check for physical interference and measure the length of the thread protruding from the surface of the gauge



Try to insert the male thread connector into the NO-GO gauge without excessive force. It shall not be possible to extend it into the NO-GO gauge by more than 6 mm, measured from the back of the gauge



Dimensions of GO gauge for female thread connector

Dimensions in millimetres

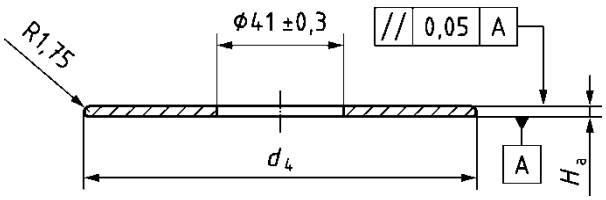
Thread	GO gauge						
	d_1	$d_{1\,w}$ [a]	d_2	$d_{2\,w}$ [a]	h	R	l_1
⌀ 40x1/7	$40{,}16^{-0{,}02}_{-0{,}04}$	$40{,}16^{0}_{-0{,}05}$	$38{,}56^{-0{,}02}_{-0{,}04}$	$38{,}56^{0}_{-0{,}05}$	$3{,}629 \pm 0{,}009$	1,225	14

[a] Diameter including permissible degradation due to wear and tear.

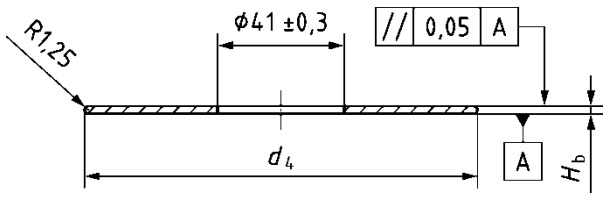
Dimensions of NO-GO gauge for female thread connector

Dimensions in millimetres

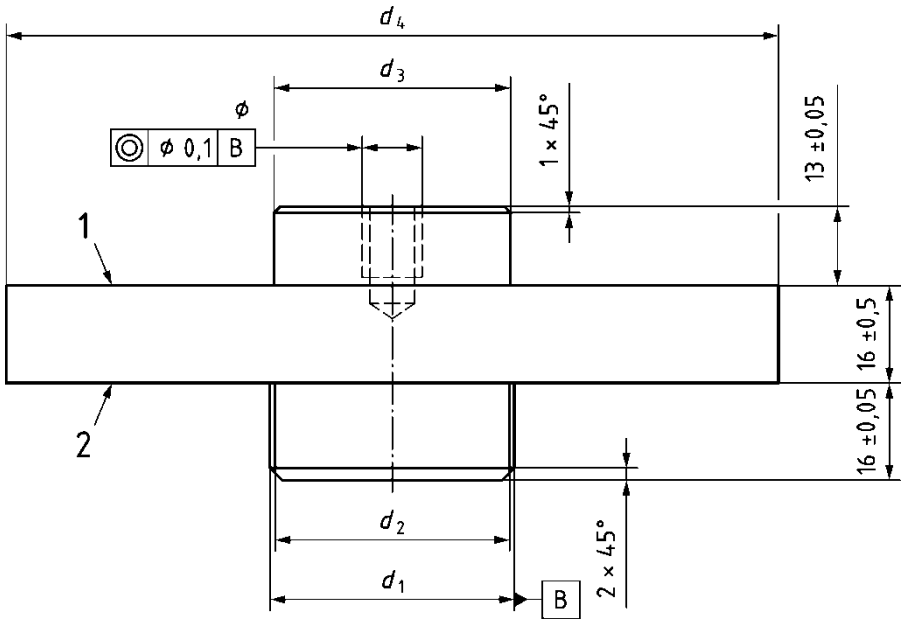
Thread	NO-GO gauge		Ring A	Ring B	
	d_1	l_2	H_a	H_b	d_4
⌀ 40x1/7	$38{,}86^{+0{,}02}_{+0{,}04}$	10	$3{,}5^{+0{,}02}_{0}$	$2{,}5^{-0{,}05}_{-0{,}15}$	$120^{+0{,}50}$



a) ring A



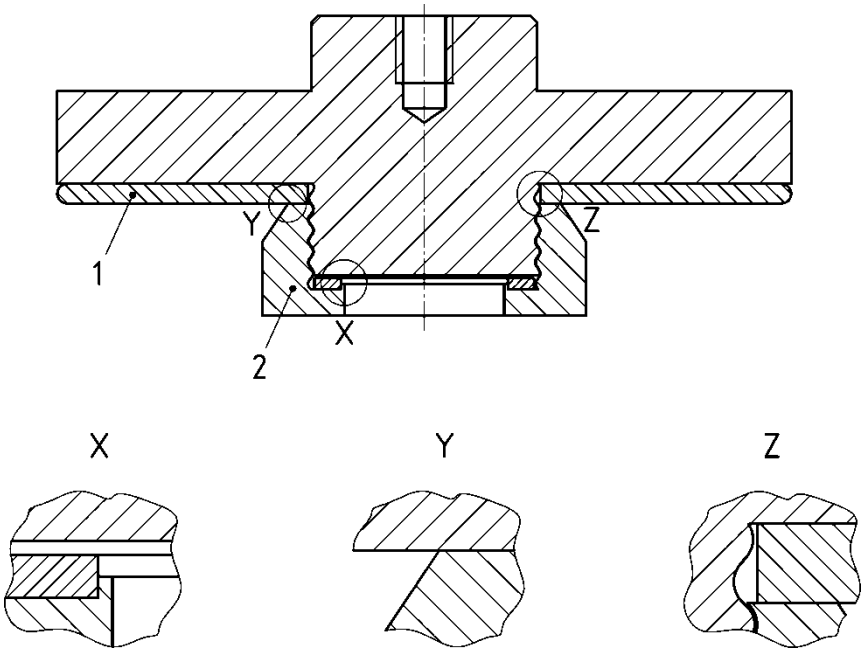
b) ring B



Dimensions in millimetres

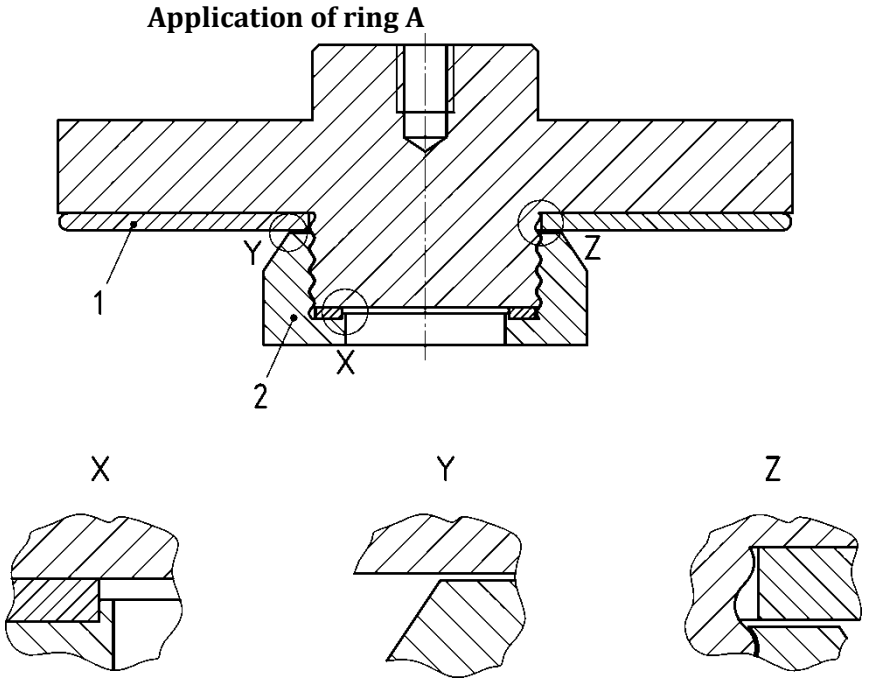
Key
1 NO-Go side
2 GO-side

Gauge dimensions for check of female thread connector (Details refer to EN 148-1)



Key
1 ring A
2 female thread connector

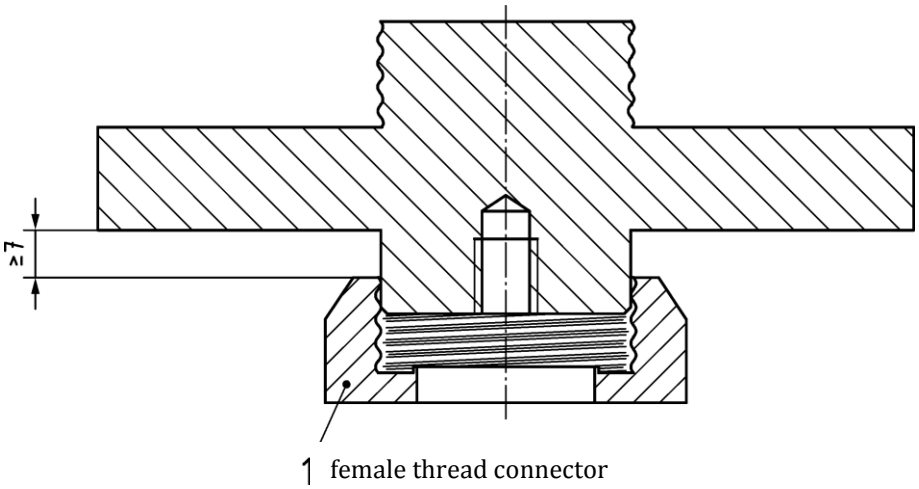
Application of ring A



Key
1 ring B
2 female thread connector

Application of ring B

It shall not be possible to insert the NO-GO gauge into the female thread connector by more than 6 mm without excessive force



References: EN 148-1, Respiratory protective devices - Threads for facepieces - Part 1: Standard thread connection, Draft 2017

ISO 17420-3, Respiratory protective devices - Performance requirements - Part 3: Thread connection, 2012

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