

INTERNATIONAL  
STANDARD

**ISO**  
**3364**

Third edition  
1997-02-01

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**Indexable hardmetal (carbide) inserts with  
rounded corners, with cylindrical fixing  
hole — Dimensions**

**iTeh STANDARD PREVIEW**

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*Plaquettes amovibles en métaux-durs (carbures métalliques) avec arrondi  
de pointe et trou de fixation cylindrique — Dimensions*

[ISO 3364:1997](https://standards.iteh.ai/catalog/standards/sist/59bd3fce-6ab0-4994-8c50-9200cd2631d1/iso-3364-1997)

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Reference number  
ISO 3364:1997(E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 3364 was prepared by Technical Committee ISO/TC 29, *Small tools*, Subcommittee SC 9, *Tools with cutting edges made of hard cutting materials*.

This third edition cancels and replaces the second edition (ISO 3364:1985), to which subclause 7.5 has been added and annexes A and C have been completed.

Annexes A, B and C form an integral part of this International Standard. Annex D is for information only.

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# Indexable hardmetal (carbide) inserts with rounded corners, with cylindrical fixing hole — Dimensions

## 1 Scope

This International Standard specifies the dimensions of indexable hardmetal (carbide) inserts with rounded corners, with cylindrical fixing hole and with 0° normal clearance. These inserts are primarily intended to be mounted by top and hole clamping or by hole alone on turning and boring tools.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 513:1991, *Application of hard cutting materials for machining by chip removal — Designation of the main groups of chip removal and groups of application.*

ISO 1832:1991, *Indexable inserts for cutting tools — Designation.*

## 3 Types of insert

The types of indexable hardmetal (carbide) insert specified in this International Standard are the following:

- TN: triangular inserts, with 0° normal clearance;
- SN: square inserts, with 0° normal clearance;
- CN: rhombic inserts, with 0° normal clearance and 80° included angle;
- DN: rhombic inserts, with 0° normal clearance and 55° included angle;
- WN: hexagonal (trigon) inserts, with 0° normal clearance and 80° included angle.

Inserts covered by in this International Standard are standardized with chip breakers on both faces, with chip breakers on one face only and with no chip breakers at all.

At present, neither the shape nor the dimensions of chip breakers are standardized. Thus, if necessary, special features have to be explained by means of a diagram or additional specifications.

Table C.1 gives the range of sizes for these inserts.

## 4 Interchangeability

### 4.1 Tolerances

Indexable hardmetal (carbide) inserts specified in this International Standard are provided in tolerance class M in accordance with ISO 1832.

The values of the tolerances in accordance with ISO 1832 are given in annex A.

Other tolerances are given, either in table 1 for hole dimensions, or in tables 2 to 6 for insert dimensions.

### 4.2 Thickness, $s$ , of inserts with chip breakers

The thickness,  $s$ , of inserts with chip breakers is defined as the distance between the cutting edge at the corner and the opposing supporting surface of the insert; see figure 1a) and b) for inserts with chip breakers on one face only and figure 1c) for inserts with chip breakers on both faces.

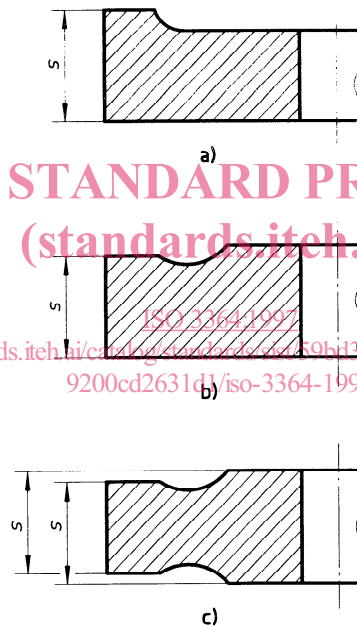


Figure 1

### 4.3 Fixing hole

In order to guarantee interchangeability when mounting the insert, the diameter  $d_1$  of the fixing hole is related to the diameter  $d$  of the inscribed circle of the insert according to table 1.

Table 1 — Fixing hole

Dimensions in millimetres

$d$	6,35	9,525	12,7	15,875	19,05	25,4
$d_1$ $\pm 0,08$	2,26	3,81	5,16	6,35	7,94	9,12

## 5 Designation and marking

### 5.1 Designation

The designation of the indexable hardmetal (carbide) inserts complying with this International Standard shall conform to ISO 1832.

In addition to this designation, one or both of the following may be indicated:

- the symbol of the group of application, according to ISO 513;
- the commercial designation of the hardmetal (carbide) grade.

### 5.2 Marking

The following symbols, at least, shall be marked on the insert itself (except when this would be difficult on the smaller inserts):

- symbol of the group of application, or commercial designation of the hardmetal (carbide) grade (or both, if possible, on large inserts).

## 6 Measurement

Annex B indicates the methods of measuring the dimension  $m$  of the indexable inserts covered by this International Standard.

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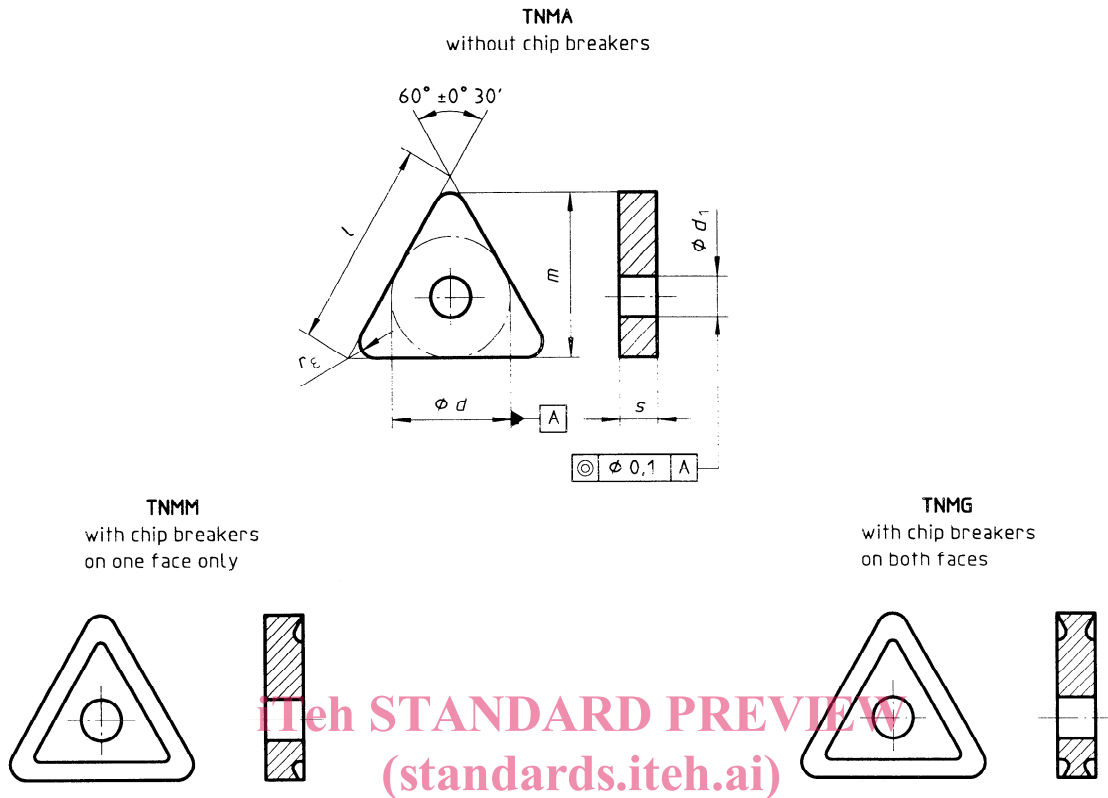
## 7 Recommended dimensions

[ISO 3364:1997](https://standards.iteh.ai/catalog/standards/sist/59bd3fce-6ab0-4994-8c50-9200cd2631d1/iso-3364-1997)

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The choice of the more common dimensions is restricted to the specifications given in tables 2 to 6. It is strongly recommended that these standard inserts be used wherever possible (first preference). When other inserts are specially required, insert dimensions shall be selected from the non-shaded portions of table C.1 (second preference). Inserts corresponding to dimensions represented by the shaded portions of this table are not recommended.

7.1 Triangular inserts



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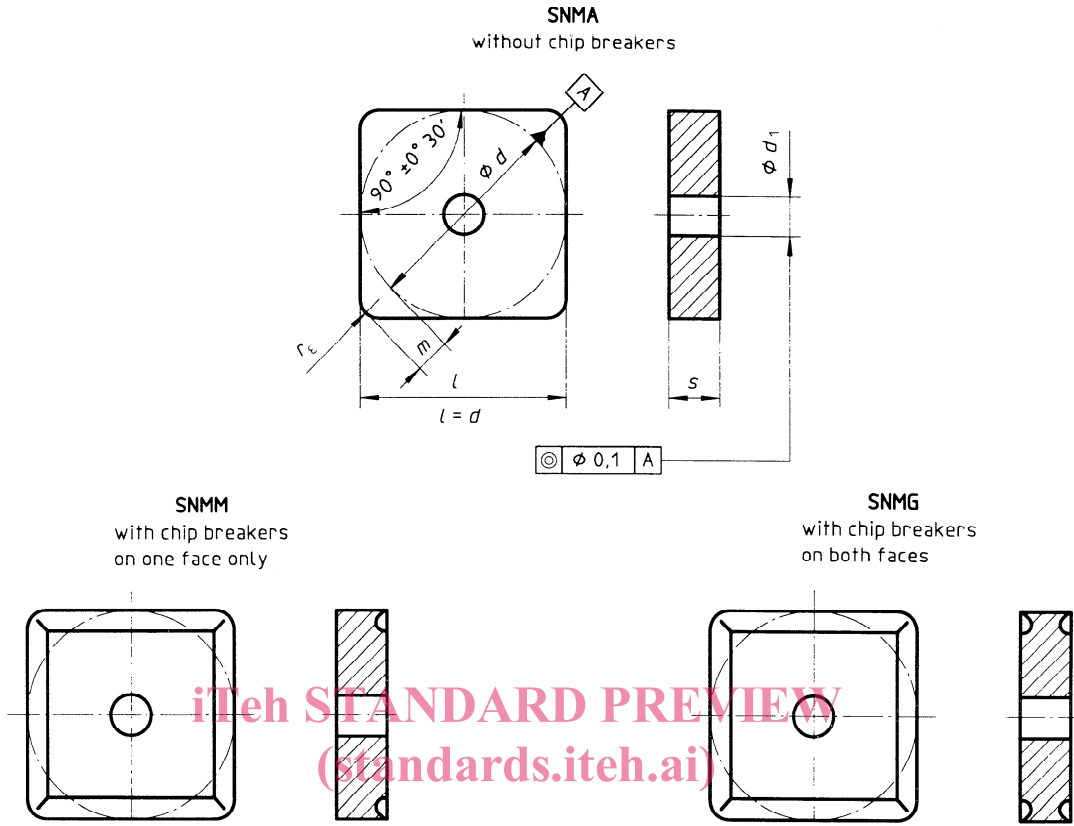
Table 2 — Dimensions of triangular inserts

Dimensions in millimetres

Insert			$l$ ≈	$d$ 1)	$s$ 1)	$m$ 1)	$r_E$ ± 0,1	$d_1$ ± 0,08
TNMA160404	—	TNMG160404	16,5	9,525	4,76	13,891	0,4	3,81
TNMA160408	TNMM160408	TNMG160408				13,494	0,8	
TNMA160412	TNMM160412	TNMG160412				13,097	1,2	
TNMA220408	TNMM220408	TNMG220408	22	12,7	4,76	18,256	0,8	5,16
TNMA220412	TNMM220412	TNMG220412				17,859	1,2	
TNMA220416	TNMM220416	TNMG220416				17,463	1,6	
—	TNMM270612	—	27,5	15,875	6,35	22,622	1,2	6,35
—	TNMM270616	—				22,225	1,6	

1) Tolerances in accordance with ISO 1832. See annex A.

7.2 Square inserts



ISO 3364:1997  
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Table 3— Dimensions of square inserts

Dimensions in millimetres

Inserts			$d$ 1), 2)	$s$ 1)	$m$ 1)	$r_e$ $\pm 0,1$	$d_1$ $\pm 0,08$
—	<b>SNMM090304</b>	<b>SNMG090304</b>	9,525	3,18	1,808	0,4	3,81
—	<b>SNMM090308</b>	<b>SNMG090308</b>			1,644	0,8	
—	—	<b>SNMG120404</b>	12,7	4,76	2,466	0,4	5,16
<b>SNMA120408</b>	<b>SNMM120408</b>	<b>SNMG120408</b>			2,301	0,8	
<b>SNMA120412</b>	<b>SNMM120412</b>	<b>SNMG120412</b>			2,137	1,2	
—	<b>SNMM150608</b>	<b>SNMG150608</b>	15,875	6,35	2,959	0,8	6,35
—	<b>SNMM150612</b>	<b>SNMG150612</b>			2,795	1,2	
<b>SNMA190612</b>	<b>SNMM190612</b>	<b>SNMG190612</b>	19,05	6,35	3,452	1,2	7,94
<b>SNMA190616</b>	<b>SNMM190616</b>	<b>SNMG190616</b>			3,288	1,6	
<b>SNMA250724</b>	<b>SNMM250724</b>	<b>SNMG250724</b>	25,4	7,94	4,274	2,4	9,12

1) Tolerances in accordance with ISO 1832. See annex A.

2)  $d = l$

7.3 Rhombic inserts with 80° included angle

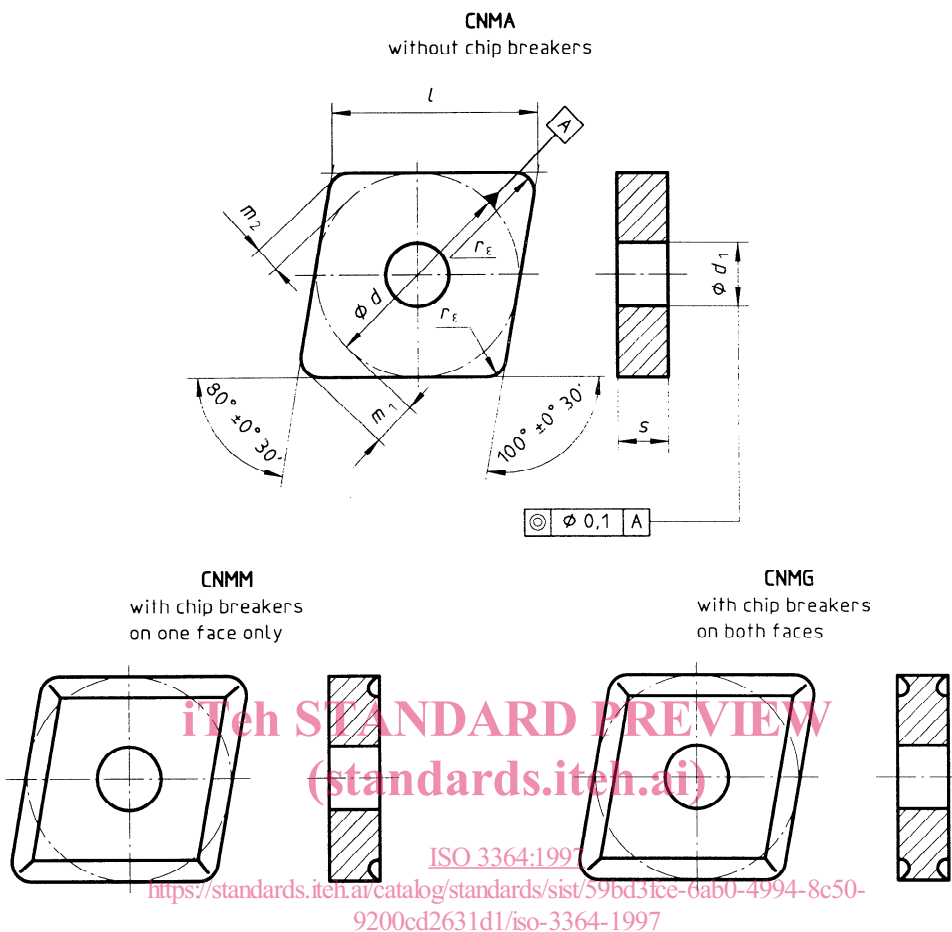


Table 4 — Dimensions of rhombic inserts with 80° included angle

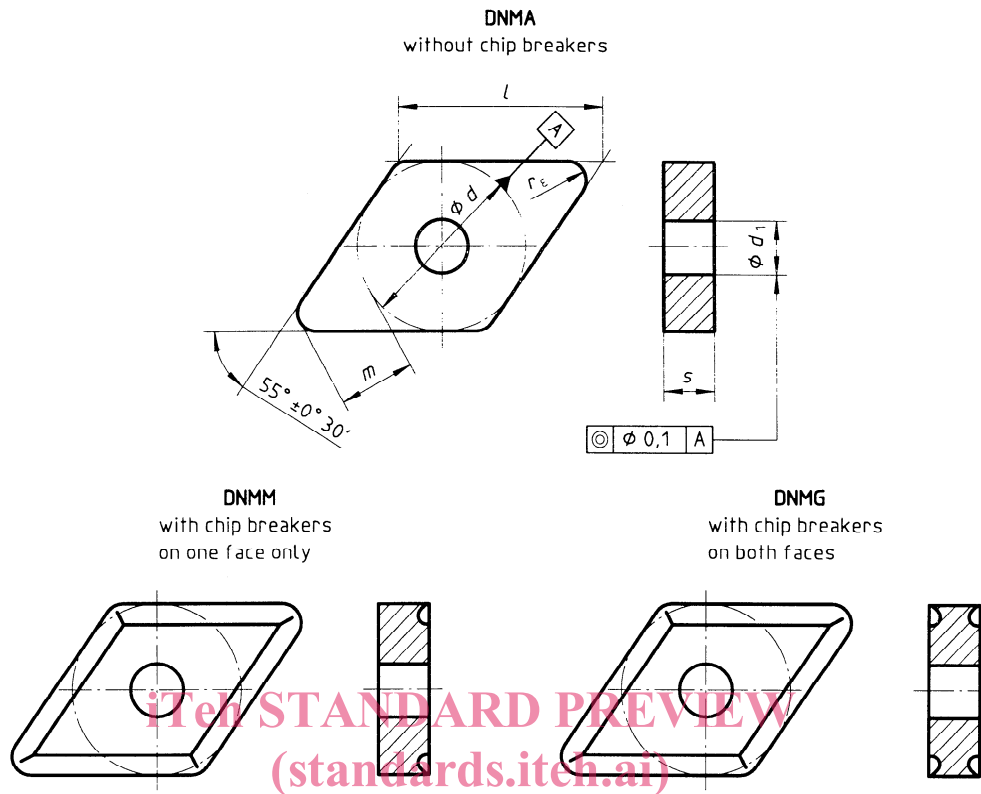
Dimensions in millimetres

Insert			$l$ ≈	$d$ 1)	$s$ 1)	$m_1$ 1)	$m_2$ 1)	$r_E$ ± 0,1	$d_1$ ± 0,08
—	—	<b>CNMG120404</b>	12,9	12,7	4,76	3,308	1,818	0,4	5,16
<b>CNMA120408</b>	<b>CNMM120408</b>	<b>CNMG120408</b>				3,088	1,697	0,8	
<b>CNMA120412</b>	<b>CNMM120412</b>	<b>CNMG120412</b>				2,867	1,576	1,2	
—	<b>CNMM160608</b>	<b>CNMG160608</b>	16,1	15,875	6,35	3,97	2,182	0,8	6,35
—	<b>CNMM160612</b>	<b>CNMG160612</b>				3,749	2,061	1,2	
—	—	<b>CNMG190608</b>	19,3	19,05	6,35	4,852	2,667	0,8	7,94
<b>CNMA190612</b>	<b>CNMM190612</b>	<b>CNMG190612</b>				4,632	2,545	1,2	
<b>CNMA190616</b>	<b>CNMM190616</b>	<b>CNMG190616</b>				4,411	2,424	1,6	

1) Tolerances in accordance with ISO 1832. See annex A.



7.4 Rhombic inserts with 55° included angle



ISO 3364:1997  
<https://standards.itech.ai/catalog/standards/sist/59bd3fce-6ab0-4994-8c50-9200cd2631d1/iso-3364-1997>

Table 5 — Dimensions of rhombic inserts with 55° included angle

Dimensions in millimetres

Insert			$l$ ≈	$d$ 1)	$s$ 1)	$m$ 1)	$r_{\epsilon}$ ± 0,1	$d_1$ ± 0,08
DNMA150604	—	DNMG150604	15,5	12,7	6,35	6,939	0,4	5,16
DNMA150608	DNMM150608	DNMG150608				6,477	0,8	
DNMA150612	DNMM150612	DNMG150612				6,014	1,2	
DNMA150616	DNMM150616	DNMG150616				5,552	1,6	

1) Tolerances in accordance with ISO 1832. See annex A.

7.5 Hexagonal (trigon) inserts with 80° included angle

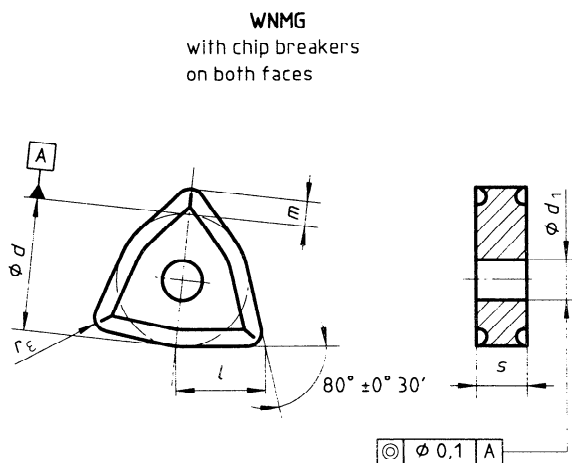


Table 6 — Dimensions of hexagonal (trigon inserts) with 80° included angle

Dimensions in millimetres

Insert	$l$ $\approx$	$d_1$ $\pm 0,1$	$s$ $\pm 0,1$	$m$ $\pm 0,1$	$r_e$ $\pm 0,1$	$d_1$ $\pm 0,08$
WNMG060404	6,5	9,525	4,76	2,426	0,4	3,81
WNMG060408				2,205	0,8	
WNMG080404	8,7	12,7	4,76	3,308	0,4	5,16
WNMG080408				3,087	0,8	
WNMG080412				2,867	1,2	

1) Tolerances in accordance with ISO 1832. See annex A.

## Annex A

(normative)

### Tolerances for $d$ , $m$ , $m_1$ , $m_2$ and $s$

(Taken from ISO 1832)

**Table A.1 — Tolerances for  $d$ ,  $m$ ,  $m_1$ ,  $m_2$  and  $s$**

Dimensions in millimetres

Designation	Insert		Tolerances class M for	
	$d$	$d$	$m$ , $m_1$ and $m_2$	$s$
TNM. 16.. SNM. 09.. WNM. 06..	9,525	$\pm 0,05$	$\pm 0,08$	$\pm 0,13$
TNM. 22.. SNM. 12.. CNM. 12.. WNM. 08..	12,7	$\pm 0,08$	$\pm 0,13$	
DNM. 15..			$\pm 0,15$	
TNM. 27.. SNM. 15.. CNM. 16..	15,875	$\pm 0,1$	$\pm 0,15$	
SNM. 19.. CNM. 19..	19,05	$\pm 0,1$	$\pm 0,15$	
SNM. 25..	25,4	$\pm 0,13$	$\pm 0,18$	