



**BOWERS METROLOGY**

# Universal Measuring Gauge

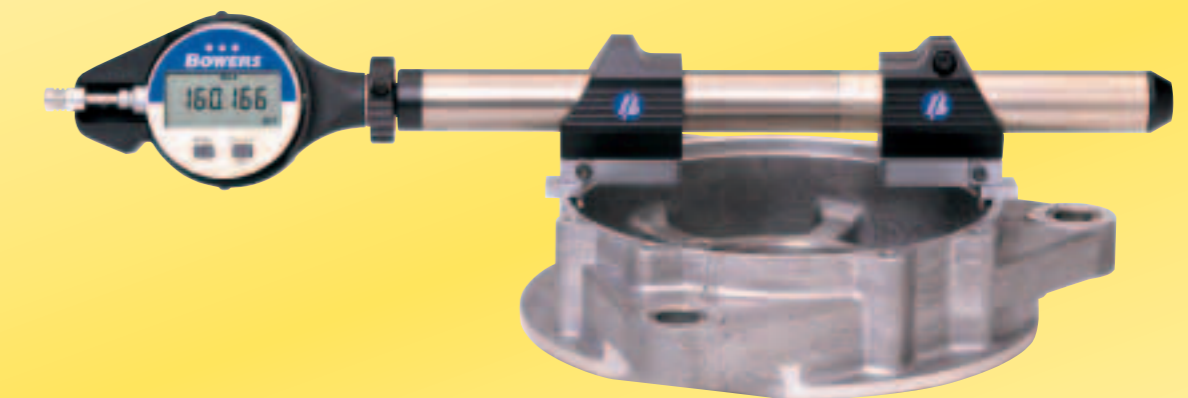
*Jauge de Mesure Universelle*  
Universalmessgerät



The new Bowers Universal Measuring gauge has been designed for measurement of internal and external dimensions such as inside & outside diameters, internal & external threads, grooves, tapers, splines, shallow spigots and recess diameters etc. The large variety of accessories can be interchanged to enable the measurement of virtually any type of workpiece.

*La nouvelle Jauge de Mesure Universelle de fabrication Bowers a été conçue pour la mesure des côtes intérieure et extérieure, à savoir: diamètres internes et externes, filetages intérieurs et extérieurs, gorges, conicité, cannelures, petits emboitements, diamètres en retrait etc... Une grande gamme d'accessoires interchangeables permet pratiquement toutes les mesures.*

Das neue Universal-Messgerät der Firma Bowers wurde für sowohl Innen als auch Außenmessungen konzipiert, z. B.: Innen- und Außen-Durchmesser, Nuten, Kegelförmigkeit, Innen- und Außenverzahnung, Durchmessern, Längen, schmalen Ansätze/ Zentriersitze und Einstiche etc. Die Messung von fast allen Werkstücksarten wird durch reichhaltiges Zubehör ermöglicht.



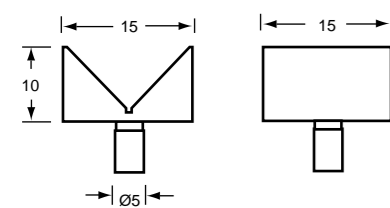
- Internal and external measurement
- Large measuring range 0-3000mm (0-118") – longer lengths available
- Constant Measuring Force
- Digital or mechanical readout display
- Large range of accessories for standard measurement of threads, grooves, splines, diameters, lengths, shallow spigots and recess diameters etc
- Anvil travel of 15mm
- Special anvil designs available P.O.A.

- Mesures internes et externes
- Grande gamme de mesure (de 0 à 3000mm)
- Pression de mesure constante
- Comparateur analogique ou à affichage digital
- Large gamme d'accessoires pour la mesure standard de filetages standards, gorges, cannelures, diamètres, longueurs, emboitements de petites profondeurs diamètres en retrait etc
- Course de mesure de touche de 15mm
- Touches spéciales disponibles - prix sur demande

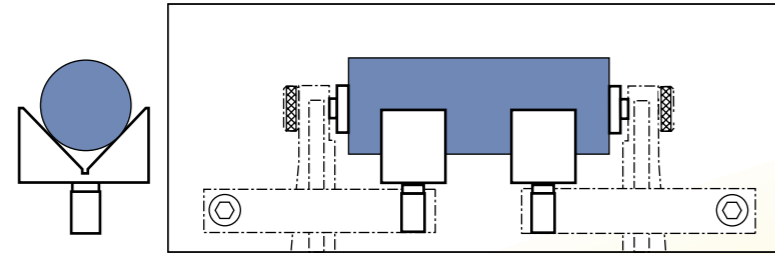
- Innen- und Außenmessung
- Großer Messbereich 0-3000mm
- Konstanter Messdruck
- Digital- oder Analog-Anzeige
- Reichhaltiges Zubehör zur Messung von Gewinden, Nuten, Innen- und Außenverzahnungen, Durchmessern, Längen, schmalen Ansätzen, Zentriersitze und Einstichen etc.
- Messweg Messeinsätze : 15mm
- Sondermesseinsätze auf Anfrage erhältlich



**Vee support for length measurement**  
*Support en V pour mesure de longueurs*  
Abstütz-Prisma zur Längenmessung

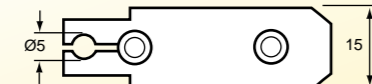
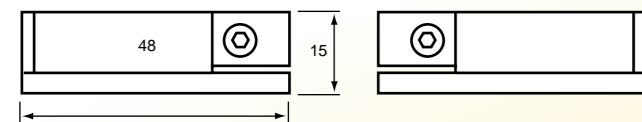


Model No  
TGUA 022



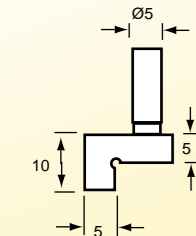
**Mounting attachment for use with the following anvils**

*Support à utiliser avec les touches suivantes:*  
Aufnahmestück für die folgenden Messeinsätze

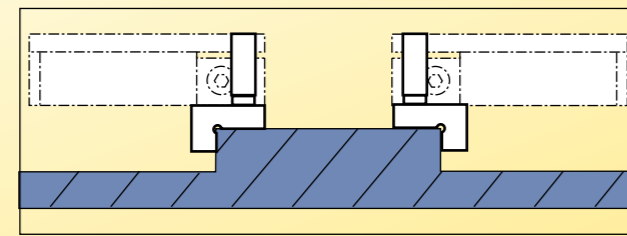


Model No  
TGUA 009

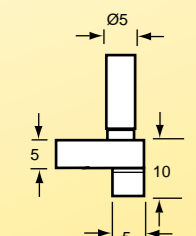
**Shoulder anvils flat outside spigot diameter**  
*Touches épaulées pour emboitements extérieurs plats*  
Schultermesseinsätze zur Messung von Außen-Zentriersitze



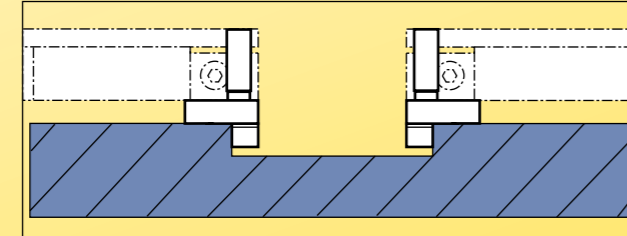
Model No  
TGUA 011



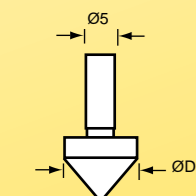
**Semi-cylindrical anvils for inside register diameters**  
*Touches cylindriques pour diamètres internes de lamages internes*  
Zylindrische Messflächen zur Messung von Innen-Zentriersitzen



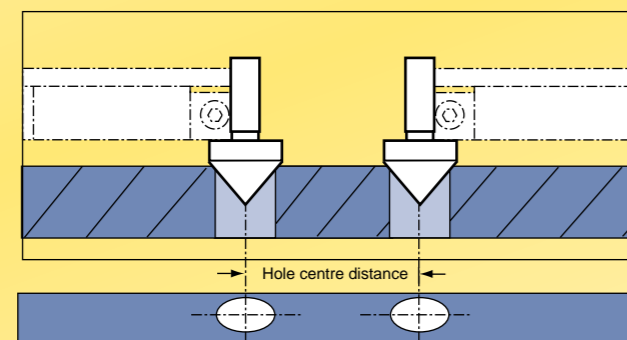
Model No  
TGUA 012



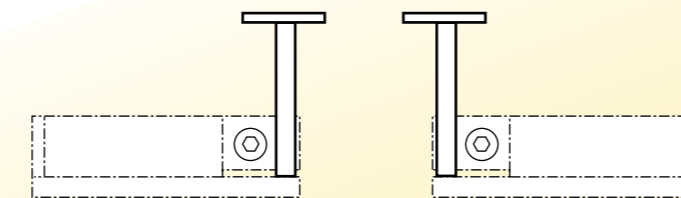
**Cone anvils for measuring Hole Centre Distance**  
*Touches coniques pour mesure d'entre-axes*  
Kegelförmige Messeinsätze für Messungen von Bohrungsabständen



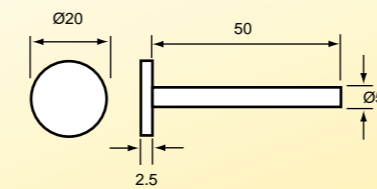
Model No	Diameter 'D'
TGUA 019	13
TGUA 020	25
TGUA 021	50



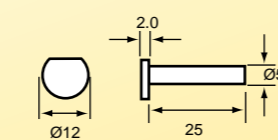
**Disc anvils for measuring Groove diameter**  
*Touches à disques pour mesure de diamètres de gorges*  
Messeinsätze mit Messteller zur Messung von Nuten-Durchmessern



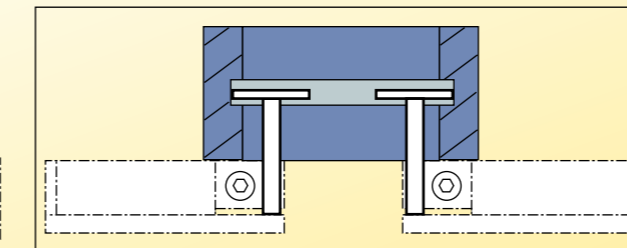
Model No  
TGUA 013



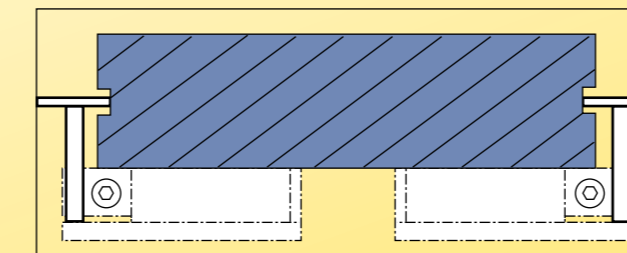
Model No  
TGUA 014



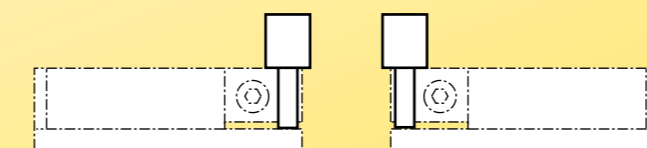
**Internal/ Interne/ Innen**



**External/ Externe/ Außen**

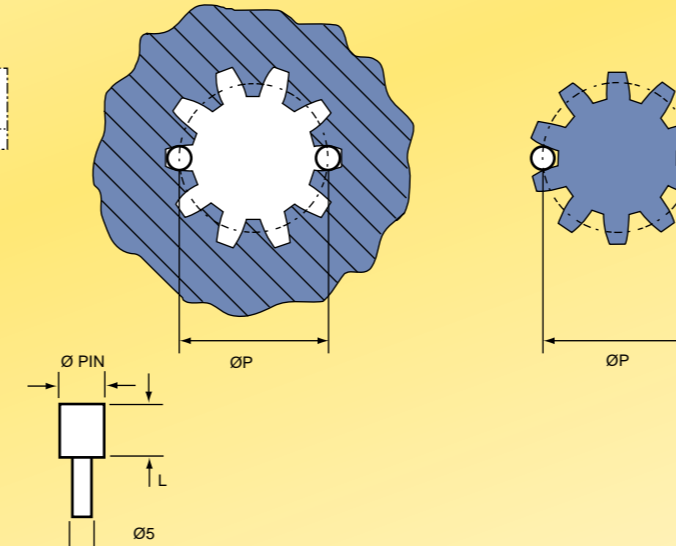


**Cylindrical measuring pins for internal & external gear measurement**  
*Piges de mesure cylindriques pour mesure de cannelures internes / externes*  
Zylindrische Meßstifte zur Messung von Innen- und Außenverzahnungen



Module	Nominal Pin Dia	Length 'L'	Model No	DP	Nominal Pin Dia	Length 'L'	Model No
1.25	2.0	10 (0.4")	TGUA 200	20	0.089	10 (0.4")	TGUA 250
1.5	2.5	10 (0.4")	TGUA 201	16	0.108	10 (0.4")	TGUA 251
1.75	3.0	15 (0.6")	TGUA 202	12	0.144	15 (0.6")	TGUA 252
2.0	3.5	15 (0.6")	TGUA 203	10	0.177	20 (0.8")	TGUA 253
2.5	4.0	15 (0.6")	TGUA 204	8	0.216	20 (0.8")	TGUA 254
2.75	4.5	20 (0.8")	TGUA 205	6	0.295	25 (1.0")	TGUA 255
3.0	5.0	20 (0.8")	TGUA 206	5	0.354	25 (1.0")	TGUA 256
3.25	5.5	20 (0.8")	TGUA 207	4	0.394	25 (1.0")	TGUA 257
3.5	6.0	20 (0.8")	TGUA 208				
4.0	7.00	25 (1.0")	TGUA 209				
5.0	9.00	25 (1.0")	TGUA 210				
6.0	10.00	25 (1.0")	TGUA 211				

Other sizes available P.O.A.  
*Autres dimensions disponibles sur demande*  
Andere Meßgrößen auf Anfrage erhältlich



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The Bowers Metrology Group Of Companies:



Calibration No. 0268

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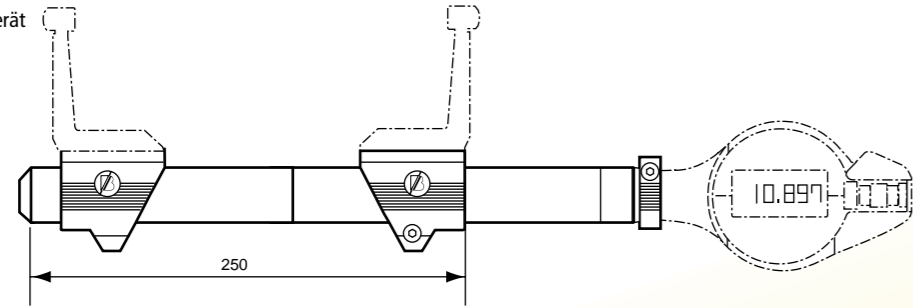


# Universal Measuring Gauge Accessories

Jauge Universelle – accessoires / Universalmessgerät – Zubehör

## Standard Gauge/ Jauge Standard/ Universal-Grundgerät

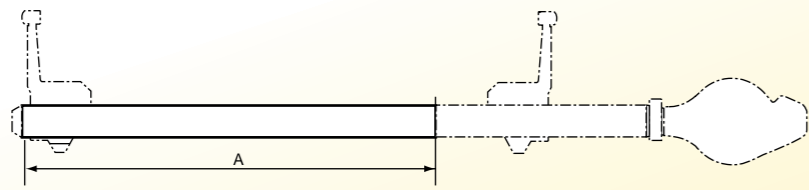
Model No	Measuring Range Internal	Measuring Range External
TGU 1000	30-250mm (1.20-10.00")	0-215mm (0-8.50")



## Extensions/ Rallonges/ Verlängerungen

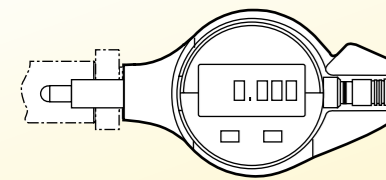
A	Model No	Range Internal	Range External
150	TGUA 033	30-400mm (1.2-15.00")	0-365 (0-14.0")
500	TGUA 032	30-750mm (1.2-29.0")	0-715 (0-28.0")

Intermediate & additional lengths can be made up by using 150 or 500mm extensions  
Rallonges supplémentaires de longueur 150 et 500mm disponibles  
Verlängerungen Länge 150 und 500mm auch erhältlich



## Digital Indicator & protective shroud

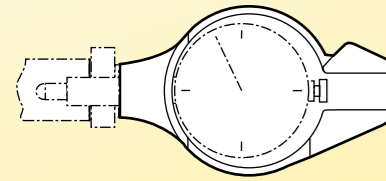
Comparteur à affichage digital avec protection anti-choc  
Digital-Anzeige mit Schutzkappe



Model No  
TGUA 001

## Protective shroud for dial/ digital indicator

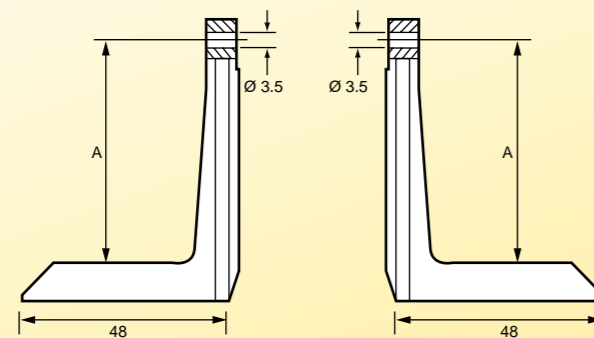
Comparteur analogique avec protection anti-choc  
Schutzkappe für Analog-Messuhr



Model No  
TGUA 002

## Measuring Arms (reversible for inside/outside diameters)

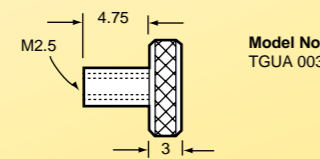
Bras de mesure (réversibles pour mesure diamètres internes/externes)  
Messarme (umkehrbar zur Innen-Außenmessung)



A Model No  
50 TGUA 006  
75 TGUA 007  
100 TGUA 008

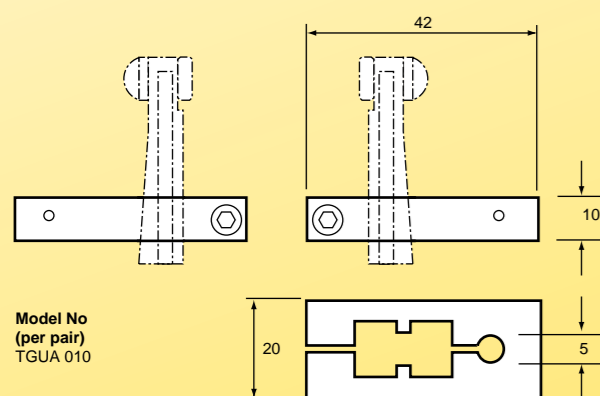
## Clamping Insert

Insert de serrage  
Spanneinsatz

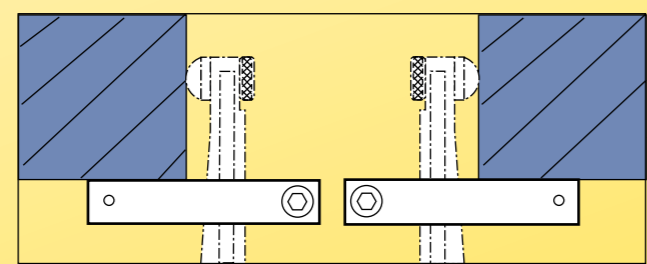


Model No  
TGUA 003

## Adjustable depth stops for measuring arms/ Arrêt de profondeur pour bras de mesure/ Tiefenanschläge für Meßarme



Model No  
(per pair)  
TGUA 010

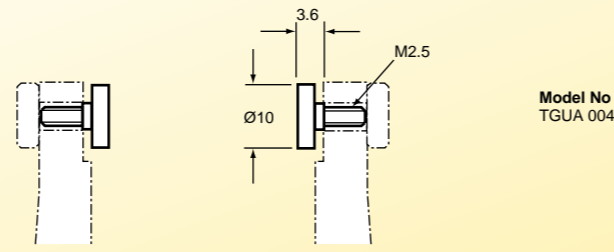


## Contacts for use with measuring arms

Touches à utiliser avec les bras de mesure  
Messeinsätze zur Verwendung mit den Messarmen

### Flat for outside diameters/ lengths

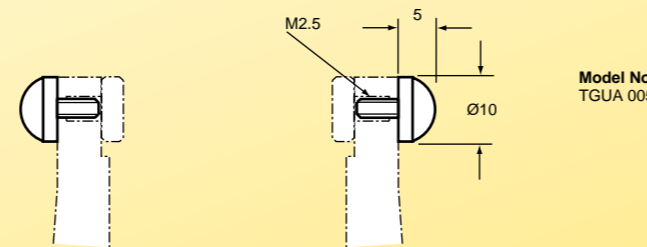
Touches plates pour diamètres externes / mesures de longueurs  
Messteller für Außen-Durchmesser / Längen



Model No  
TGUA 004

### Spherical for inside diameters

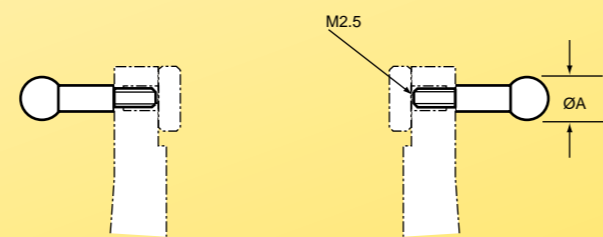
Touches sphériques pour diamètres internes  
Ballige Messflächen zur Innenmessung



Model No  
TGUA 005

### Ball Anvils for measurement of Pitch diameter (P) on internal or external gears/ splines

Touches à billes pour la mesure de diamètres de pas sur cannelures internes / externes  
Kugelmesssätze zur Messung des Flankendurchmessers auf innen / Außenverzahnungen

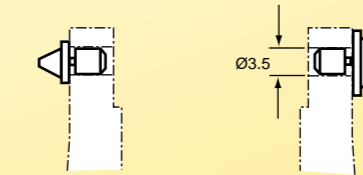


Module	Nominal Ball Dia 'A'	Model No	DP	Nominal Ball Dia 'A'	Model No
0.6	1.0	TGUA 100	40	0.043	TGUA 150
0.7	1.25	TGUA 101	36	0.049	TGUA 151
0.9	1.5	TGUA 102	32	0.054	TGUA 152
1.0	1.75	TGUA 103	24	0.071	TGUA 153
1.25	2.0	TGUA 104	20	0.089	TGUA 154
1.5	2.5	TGUA 105	16	0.108	TGUA 155
1.75	3.0	TGUA 106	12	0.144	TGUA 156
2.0	3.5	TGUA 107	10	0.177	TGUA 157
2.5	4.0	TGUA 108	8	0.216	TGUA 158
2.75	4.5	TGUA 109	6	0.295	TGUA 159
3.0	5.0	TGUA 110	5	0.354	TGUA 160
3.25	5.5	TGUA 111	4	0.394	TGUA 161
3.5	6.0	TGUA 112			
4.0	7.00	TGUA 113			
5.0	9.00	TGUA 114			
6.0	10.00	TGUA 115			

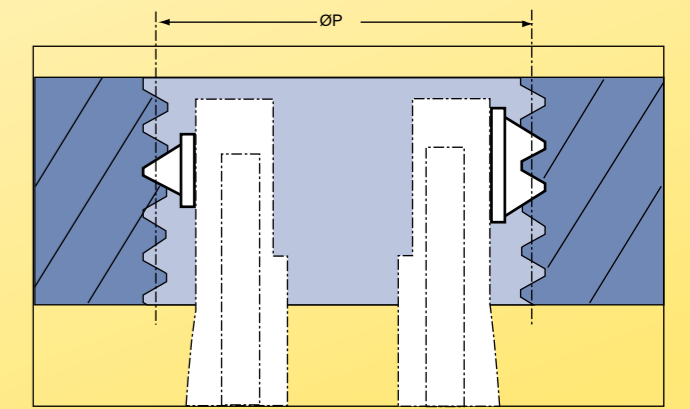
Other sizes available P.O.A./ Autres dimensions disponibles sur demande/ Andere Meßgrößen auf Anfrage erhältlich

## Thread anvils for Internal Pitch diameter

Touches pour mesure de diamètres de filetages internes  
Gewindemesssätze zur Messung von Innengewinden

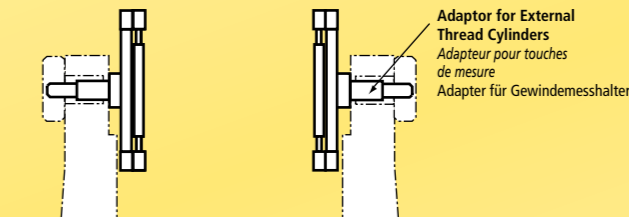


Metric Pitch 60°	Model No (per set)	Unified 60° T.P.I.	Model No (per set)	Whitworth 55° T.P.I.	Model No (per set)
0.4-0.45	TGUA 301	64.0	TGUA 401	60-48	TGUA501
0.5-0.6	TGUA 311	56-44	TGUA 411	40-32	TGUA511
0.7-0.8	TGUA 321	40-32	TGUA 421	28-22	TGUA521
1.0-1.25	TGUA 331	28-20	TGUA 431	20-16	TGUA531
1.5-1.75	TGUA 341	18-14	TGUA 441	14-11	TGUA541
2.0-2.5	TGUA 351	13-10	TGUA 451	10-8	TGUA551
3.0-3.5	TGUA 361	9.0-7.0	TGUA 461	7-6	TGUA561
4.0-5.0	TGUA 371	6.0-5.0	TGUA 471	5-4	TGUA571
5.5-6.0	TGUA 381	4.5-4.0	TGUA 481	3.5-2.75	TGUA581
				2.625-2	TGUA591

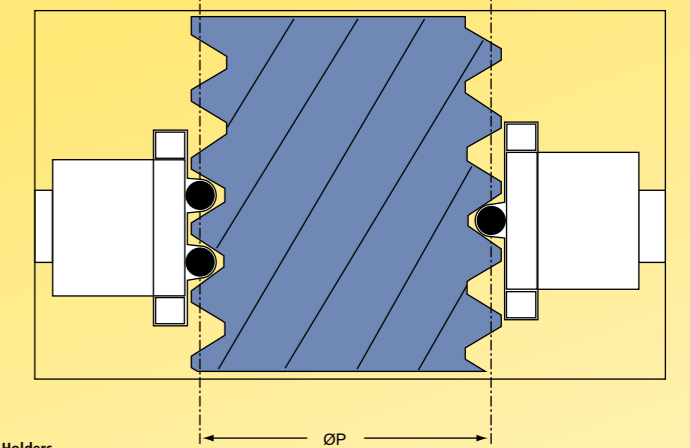


## Thread Cylinders & Holders for External Threads

Touches de mesure et supports pour mesure de filetages externes  
Gewindemessdrähte mit Haltern zur Außengewindemessung



Adaptor for External Thread Cylinders  
Adaptateur pour touches de mesure  
Adapter für Gewindemesshalter



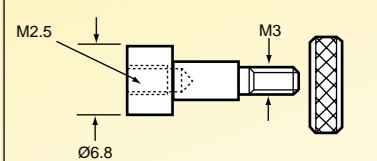
Thread Measuring Cylinders and Holders  
Touches de mesure et supports pour mesure de filetages  
Gewindemessdrähte mit Haltern zur Außengewindemessung

Metric Pitch 60° mm	P Value in mm	Unified 60° T.P.I.	P Value in inches	55° Whitworth T.P.I.	P Value in inches	Cylinder Diameter	Model No (per set)
25-30	0.0465-0.0899	-	-	80	.00421	0.170mm (.00669")	TGUA 30E
-	-	80	.00315	72	.00438	0.195mm (.00768")	TGUA 31E
35	0.0831	72	.00337	64	.00491	0.220mm (.00866")	TGUA 32E
40	0.0965	64	.00369	60	.00454	0.250mm (.00984")	TGUA 33E
45-50	0.0996-0.1430	56	.00404	48	.00670	0.290mm (.01142")	TGUA 34E
60	0.1847	48	.00485	40	.00864	0.335mm (.01319")	TGUA 35E
65	0.1730	44-40	.00433-.00630	36	.00879	0.390mm (.01535")	TGUA 36E
70-75	0.1514-0.1946	36-32	.00615-.00915	32	.00914	0.455mm (.01791")	TGUA 37E
80-90	0.1628-0.2494	28-26	.01006-.01244	28-26	.00998-.01261	0.530mm (.02087")	TGUA 38E
1.0	0.2459	24	.01167	24-22	.01157-.01520	0.620mm (.02854")	TGUA 39E
1.25	0.3576	20	.01476	20-19	.01476-.01728	0.725mm (.02854")	TGUA 40E
1.5	0.4039	18-16	.01287-.01889	18-16	.01228-.01895	0.895mm (.03524")	TGUA 41E
1.75	0.4155	14-13	.01855-.02331	14	.01811	1.100mm (.04331")	TGUA 42E
2.0	0.3820	12-11	.01902-.02558	12-11	.01809-.02536	1.350mm (.05315")	TGUA 43E
2.5	0.5151	10-9	.02164-.03126	10-9	.02033-.03100	1.650mm (.06496")	TGUA 44E
3.0-3.5	0.5481-0.9809	8-7	.02754-.04301	8-7	.02598-.04313	2.050mm (.08071")	TGUA 45E
4.0-4.5	0.9141-1.3472	6	.04395	6	.04306	2.550mm (.10039")	TGUA 46E
5.0-5.5	1.1303-1.5631	5-4.5	.04722-.06647	5-4.5	.04525-.06659	3.200mm (.12598")	TGUA 47E

Other sizes available P.O.A./ Autres dimensions disponibles sur demande/ Andere Meßgrößen auf Anfrage erhältlich

## Adaptor for External Thread Cylinders or M2.5 Contact Tips

Adaptateur pour supports de touches de mesure de filetages externes, ou touches M2.5/4-8  
Adapter für Außengewinde - Halter oder Meßeinsätze M2.5/4-8



Model No  
M2.5 TGUA 017  
4-8 TGUA 018