

آزما صنعت گراد



نماینده انحصاری کمپانی **Mahr** آلمان

|
- 0 +



EXACTLY

► | Multimar. Universal Measuring Instruments

Multimar 25 ES

Digital Universal Caliper

10- 2

Multimar 844 T

Universal Measuring Instrument for Comparison Measurements

10- 4

Accessories for Multimar 25 ES / 844 T

10- 6

Multimar 36 B

Indicator Gage for Internal (I.D.) and External (O.D.) Measurements

10-21

Digital Universal Caliper 25 ES Varimeter



Applications

- For measuring:
- Outside and inside dimensions
 - Centering shoulders
 - Narrow collars
 - External and internal tapers
 - Dovetails
 - Grooves
 - Distances between hole centers
 - For scribing of work pieces

Illustration is shown with accessories, these are sold separately

Features

Functions:

ON/OFF
RESET (zero setting)
mm/inch
HOLD (Storage of measuring values)
DATA (Data transmission)
PRESET (for entering a numerical value)
TOL (Tolerance display)

- Capacitive measuring system, life of the battery ca. 2 years
- Max measuring speed: 1.5 m/s (60"/s)
- Data output: Opto RS232C via data connection cable
- High contrast 6 mm Liquid Crystal Display
- Interchangeable measuring arms

- Due to the patented mounting fixture of the measuring arms and or measuring attachments provided on both the upper and lower longitudinal face of the arm holders, the digital display is always in the operator's line of vision
- The application range can be easily extended by reversing the measuring arms

- Both measuring arms can be moved along the beam thus having a well balanced weight distribution even with small dimensions
- Slide and beam are made of hardened stainless steel
- Supplied with: Battery

Technical Data

Measuring range*							Resolution		Error limit (DIN 862)		Weight		Order no.	Order no. wooden case	
outside		inside													
mm	(inch)	mm	(inch)	mm	/ inch	mm	/ inch	mm	/ inch	g	/ lbs				
0 - 300	(0 - 12")	25 - 325	(1 - 13")	0.01 / .0005"		0.03 / .0015"		770 / 1.7		4118700		4118750			
0 - 300	(0 - 12")	25 - 325	(1 - 13")	0.01 / .0005"		0.03 / .0015"		750 / 1.6		4118701**		4118750			
0 - 600	(0 - 24")	25 - 625	(1 - 25")	0.01 / .0005"		0.03 / .0015"		1050 / 2.3		4118702		4118751			
0 - 1000	(0 - 40")	25 - 1025	(1 - 41")	0.01 / .0005"		0.04 / .0020"		1470 / 3.2		4118703		4118752			

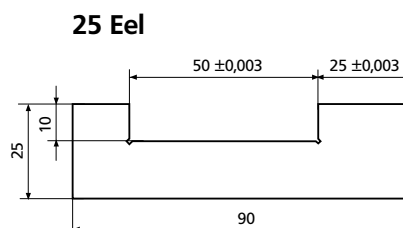
* Dependent upon which accessories are being used the measuring range can be extended by a further 75 mm (2.95") by reversing the measuring arms 844 Te/Tx

** Without fine adjustment

Accessories

	Order no.
Setting Gage, hardened steel, screwed in to wooden case	25 Eel 4118520
Battery 3V, Type CR 2032	4102520
Data Connection Cable Opto RS232C (2 m), with SUB-D jack 9-pin	16 ESv 4102510

Accessories for Data Processing see Chapter 11



Digital Universal Caliper 25 ES Measuring Arms, Mounting Attachments and Anvils

Dimensions

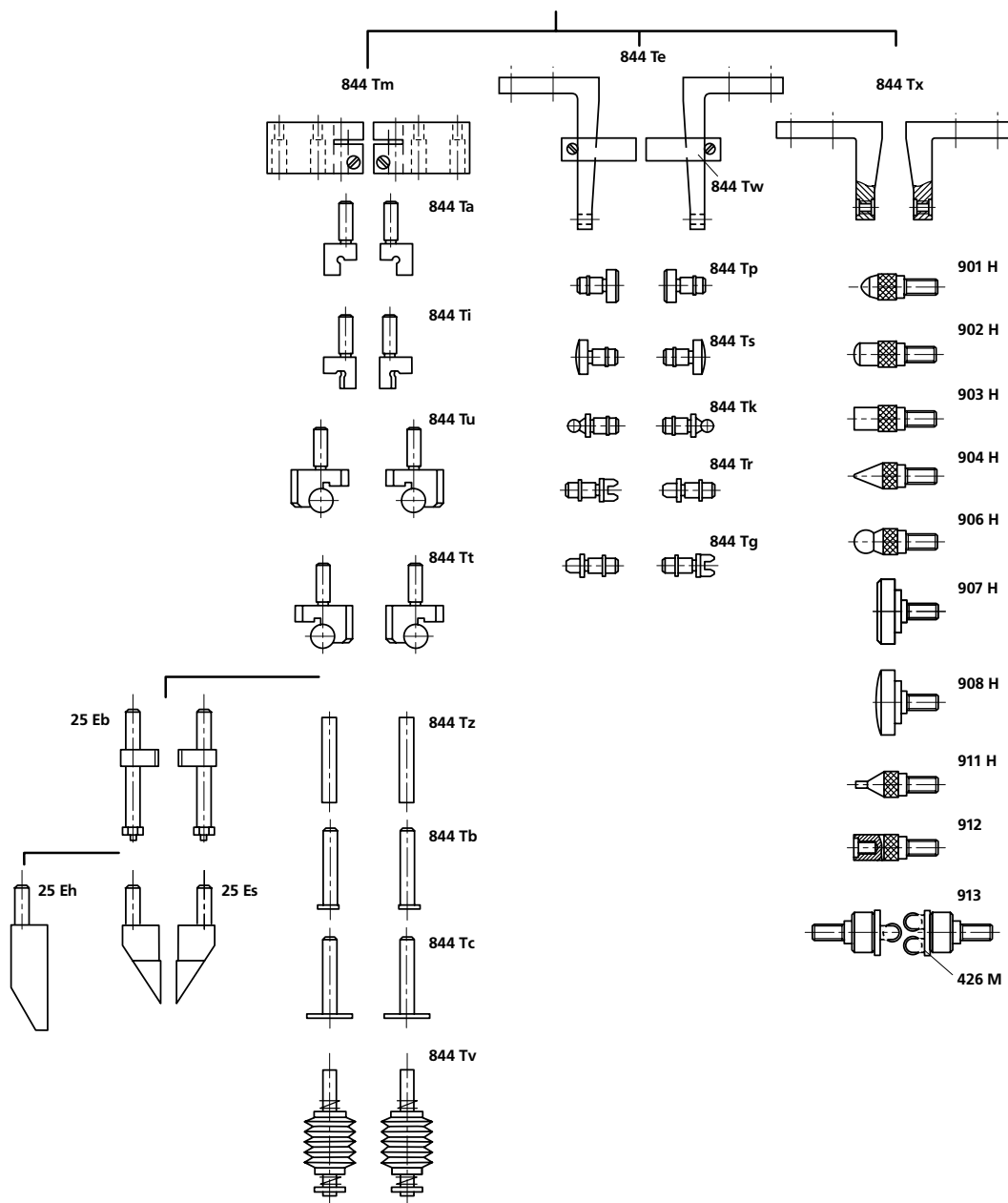
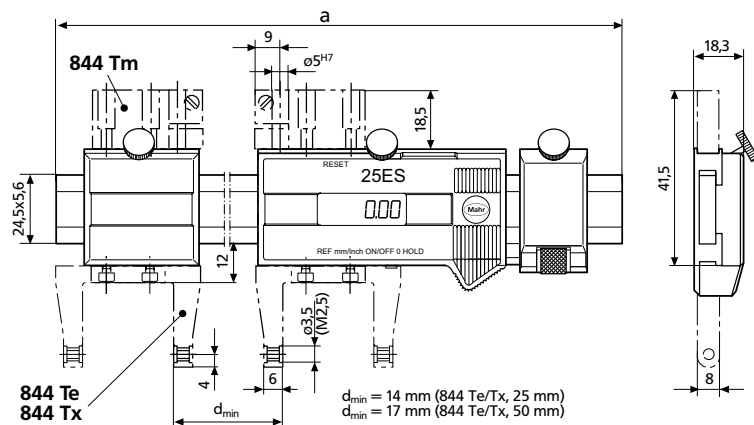
Range of application

mm/*inch* mm/*inch*

0 - 300 / **0 - 12"** 475/18.5"

0 - 600 / **0 - 24"** 775/30.5"

0 - 1000/ **0 - 40"** 1175/**46.2"**



Multimar. Universal Gage 844 T for external and internal dimensions

OVERVIEW

► | The Universal Gage **Multimar** 844 T. Easy to use and versatile; ideal for all your measuring requirements in dimensional metrology.

Applications

- External and internal dimensions
- External and internal threads
- Centering shoulders
- Narrow collars, recesses and grooves
- External and internal tapers
- External and internal tooth profiles / gears
- and lots more

All indicating instruments with an 8 mm mounting shank can be used



Constant measuring force due to the built-in measuring force spring



The moveable measuring arm holder is mounted in a highly precision ball guide to eliminate both play and friction; it also has an extreme measuring sensitivity and accuracy due to the optimal stability and ease of movement

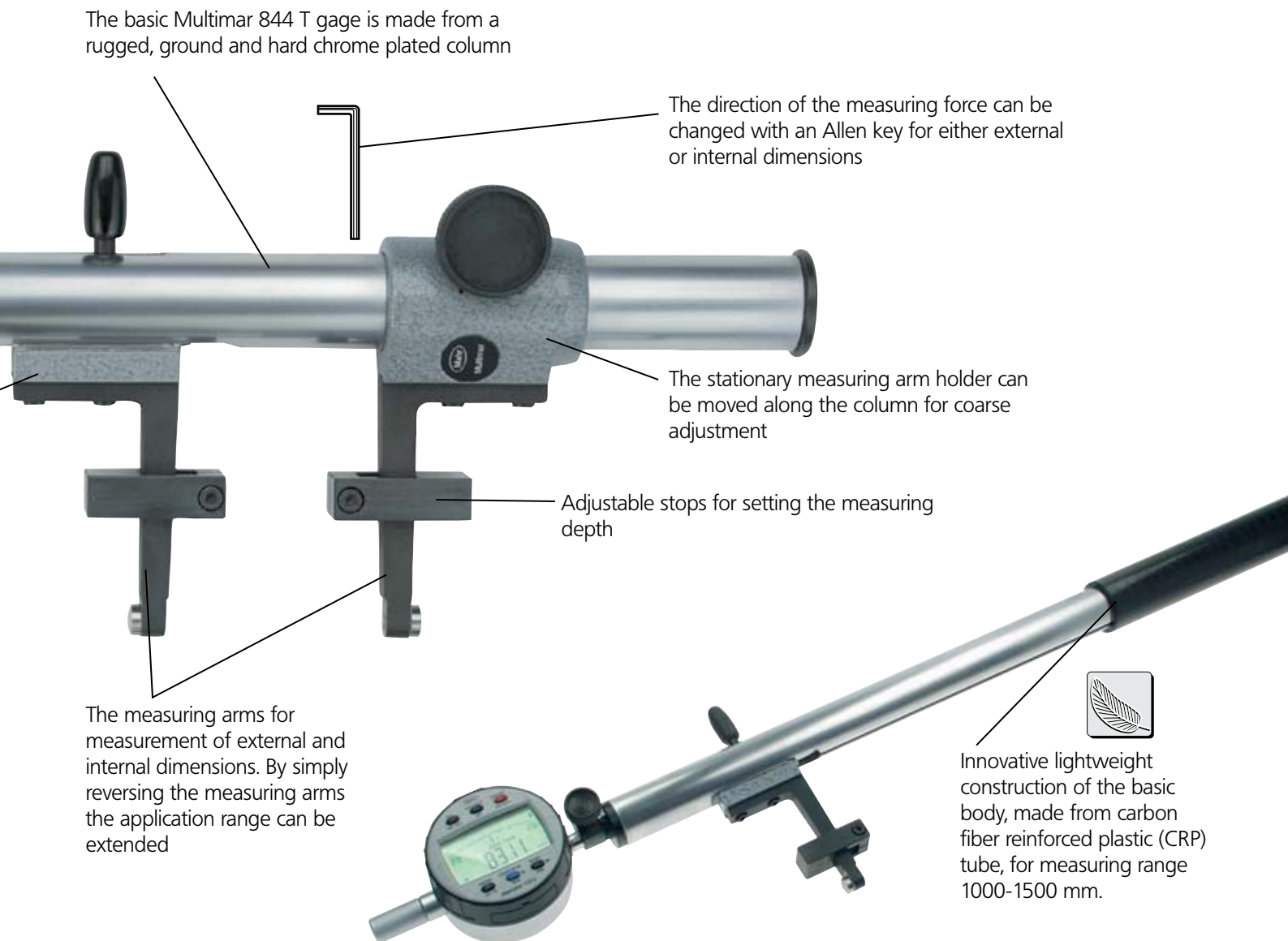
Technical Data

Application range*					Extended range of application					Distance of movable anvil			Weight		Order no.**	Order no. Wooden case		
mm		(inch)			mm		/ inch			mm / inch		g / lbs						
25	- 110	(1	-	4.33")	25	- 185	/	1	-	7.28"	10	/	.4"	775	/	1.71	4500001***	4500010
100	- 260	(4	-	10.24")	100	- 335	/	4	-	13.18"	10	/	.4"	1010	/	2.23	4500002***	4500011
250	- 610	(10	-	24.02")	250	- 685	/	10	-	26.96"	10	/	.4"	1580	/	3.48	4500003***	4500012
600	- 1010	(24	-	39.75")	600	- 1085	/	24	-	42.71"	10	/	.4"	2225	/	4.91	4500004***	4500013
1000	- 1500	(39.37	-	59.06")	1000	- 1575	/	39.37	-	62.01"	10	/	.4"	2460	/	5.42	4500005***	-
1500	- 2000	(59.06	-	78.74")	1500	- 2075	/	59.06	-	81.69"	10	/	.4"	2620	/	5.78	4500006***	-
2000	- 2500	(78.74	-	98.43")	2000	- 2575	/	78.74	-	101.38"	10	/	.4"	2800	/	6.17	4500007***	-

* These application ranges only apply to internal measurements. For external measurements the range of application is reduced by 25 mm (1").
The extension of the application range takes place when the measuring elements are rotated through 180°.
All application ranges depend upon which anvil is being used.
From 1000 mm (range of application) a lightweight CRP tube is used.

** Excludes indicating instrument

*** Supplied with a wooden case



Indicating Instruments

All indicating instruments with a 8 mm mounting shank can be used.
Recommended are:

Indicating Instrument	Readings		Order no.	
	mm	/ inch	mm	/ inch
MarCator 810 S	0.01 mm		4311000	
Millimes 1010 / 1010 Z	0.01 mm	/ .0005"	4332000 / 4332900	
Millimes 1004 / 1004 Z	5 µm	/ .0001"	4333000 / 4333900	
Digital Indicator MarCator 1087 BR	0.001 mm*	/ .00005"	4337662	
Digital Indicator MarCator 1087 BRi	0.001 mm*	/ .00005"	4337664	

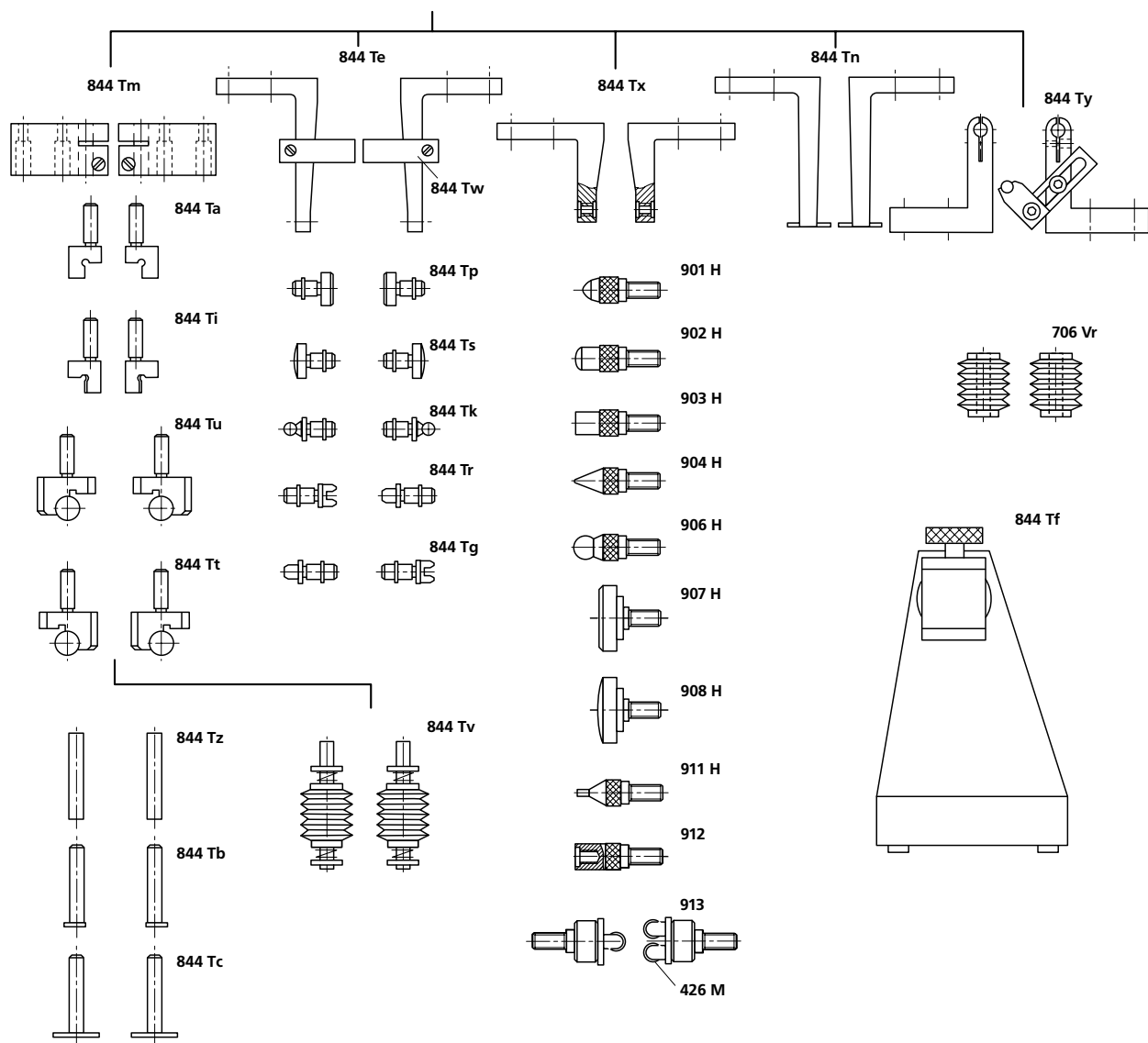
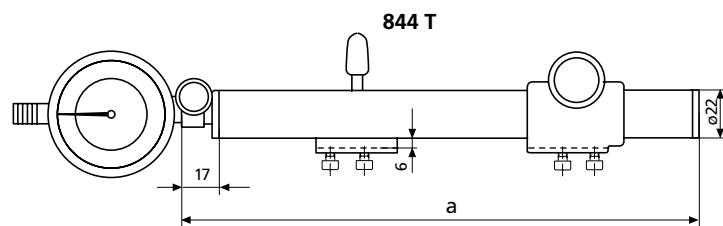
* Resolution - Switchable

For further digital indicators please refer to Chapter 5

Overview. Measuring Arms, Stops, Mounting Attachments and Anvils

Dimensions

Range of application		a
mm	(inch)	mm / inch
25 - 110	(1 - 4.33")	245 / 9.6"
100 - 260	(4 - 10.24")	395 / 15.5"
250 - 610	(10 - 24.02")	745 / 29.3"
600 - 1010	(24 - 39.75")	1145 / 45.0"
1000 - 1500	(39.37 - 59.06")	1675 / 65.9"
1500 - 2000	(59.06 - 78.74")	2175 / 85.6"
2000 - 2500	(78.74 - 98.43")	2675 / 105.3"

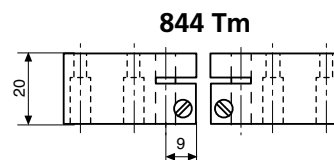


Overview. Measuring Arms, Stops and Mounting Attachments

Mounting Attachments 844 Tm

- Accommodates the following anvils 844 Ta, 844 Ti, 844 Tu, 844 Tt, 844 Tz, 844 Tb und 844 Tc
- Faces can also be used as stops
- Reversible arm holders for extending measuring range

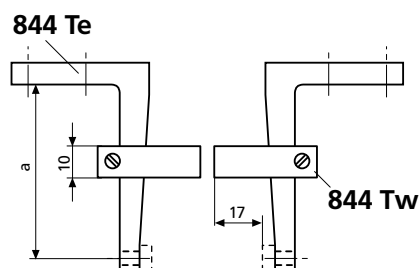
Order no. 4500030



Measuring Arms 844 Te

- For external and internal diameters
- With a 3.5 mm (0.138") diameter mount, accommodates the interchangeable anvils 844 Tp, 844 Ts, 844 Tk, 844 Tr and 844 Tg
- Reversible arm holders for extending measuring range

Throat depth a in mm	25	50	100
Order no.	4500020	4500021	4500022*



* Not suitable for Digital Caliper 25 ES

Stops 844 Tw

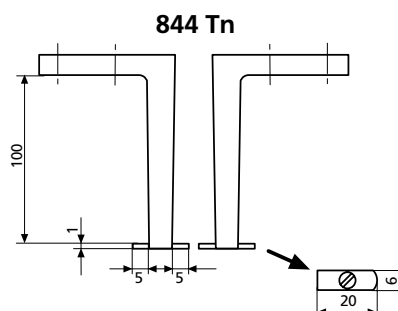
- To set the measuring depth limit. Can be attached and relocated on the following measuring arms 844 Te, 844 Tn, 844 Tx. Reversible for external and internal measurements

Order no. 4500109

Measuring Arms 844 Tn

- Hardened steel
- To measure external and internal diameters on recesses and grooves at a greater measuring depth

Throat depth a in mm	100
Order no.	4500036*



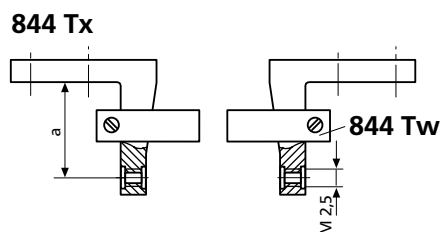
* Not suitable for Digital Caliper 25 ES

Measuring Arms 844 Tx

- With an M 2.5 connection thread to screw in interchangeable anvils
- For internal and external dimensions on specially formed work pieces
- Measuring arms in conjunction with the measuring arms holder is reversible thus extending the range of measurement / application

Throat depth a in mm	25	50	100
Order no.	4500080	4500081	4500082*

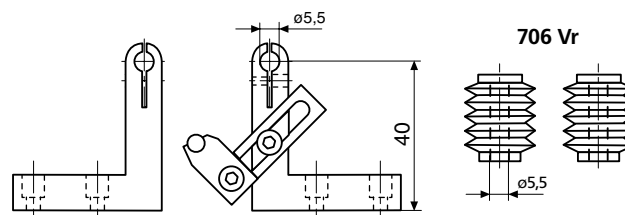
* Not suitable for Digital Caliper 25 ES



Holder for Measuring Rollers 844 Ty

- With location bolts for the Measuring Rollers 706 Vr, plus a stop and stop pin

Order no. 4502463



Measuring external and internal dimensions

Anvils for Measuring Arms 844 Te

- Hardened steel
- With a cylindrical mounting shank and retainer ring that allows free rotation in the bore of measuring arms 844 Te

Cat. no.

Order no.

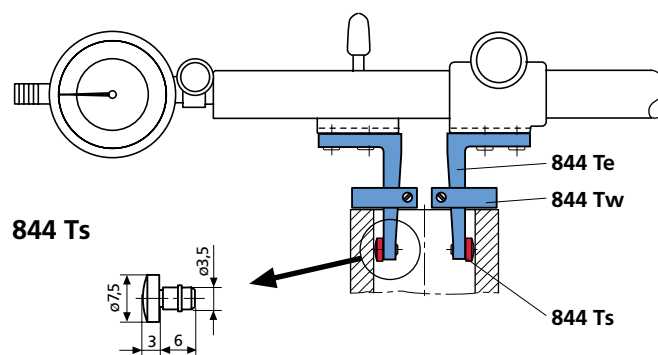
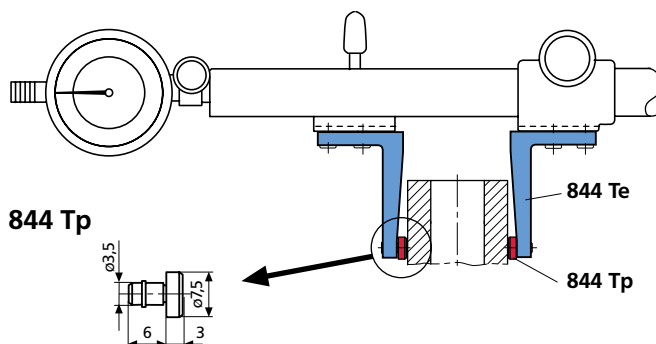
844 Tp Flat; for external diameters, distance and widths

4500040*

844 Ts Spherical; for internal diameters

4500045*

* 2 pieces are required



Shoulder anvils for mounting attachments 844 Tm

- Made from hardened steel
- For measuring narrow collars such as centering shoulders and other similar measuring tasks
- With cylindrical mounting shaft to attach into the mounting attachments 844 Tm

Cat. no.

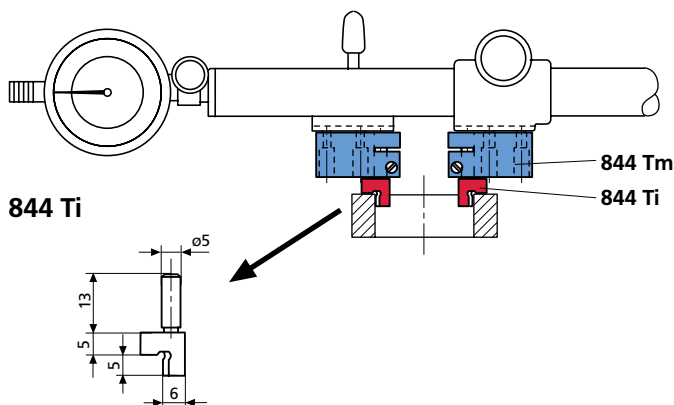
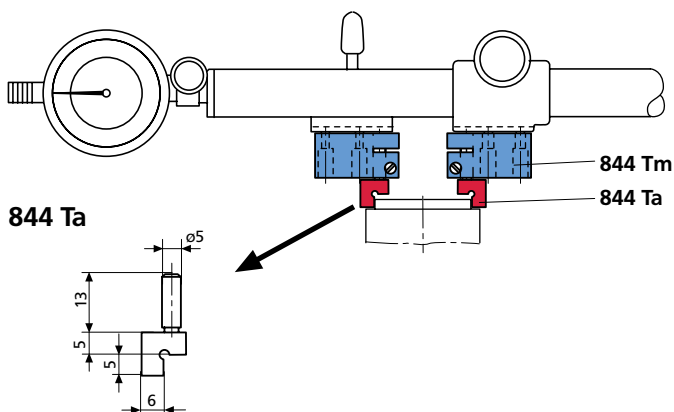
Order no.

844 Ta Flat; for external diameters

4500050

844 Ti Semi-cylindrical, for internal diameters

4500055



Measuring tapers and distances

Roller Anvils 844 Tu* for Mounting Attachments 844 Tm

- To measure the diameter of **outside tapers and dovetail guides**
- Roller is made of hardened steel

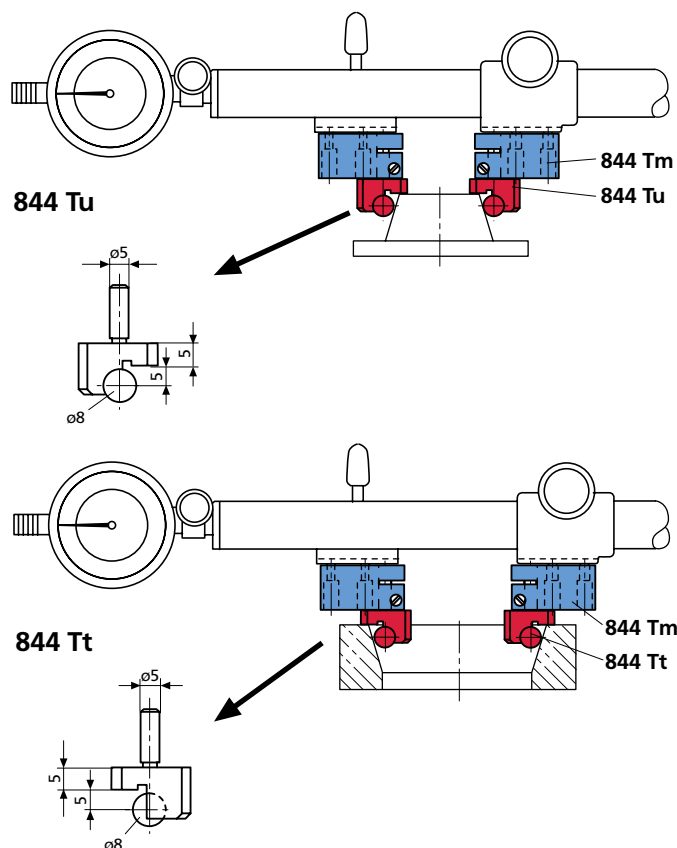
Cat. no.			Order no.
844 Tu*	Roller dia.	8 mm	4500047
	Roller length	14 mm	
	Distance of the roller to the stop face	5 mm $\pm$ 3 μ m	

Ball Anvils 844 Tt* for Mounting Attachments 844 Tm

- To measure the diameter of **inside tapers** with a distance of 5 mm from the taper face
- Ball is made of hardened steel

Cat. no.			Order no.
844 Tt*	Ball dia.	8 mm	4500046
	Distance of the ball to the stop face	5 mm $\pm$ 3 μ m	

* Outer and inner surfaces that are parallel to one another a combination sets (pair) consisting of a Roller Anvil 844 Tu and a Ball Anvil 844 Tt, are recommended.



Measuring recesses

Anvils with Measuring Blades for Mounting Attachments 844 Tm

- For measuring centering shoulders and recesses on internal and external diameters; consists of a pin type holder, which is moved to set the measuring depth in Mounting Attachment 844 Tm and a mounted measuring blade
- The face of the Mounting Attachment 844 Tm serves as stop

844 Tb

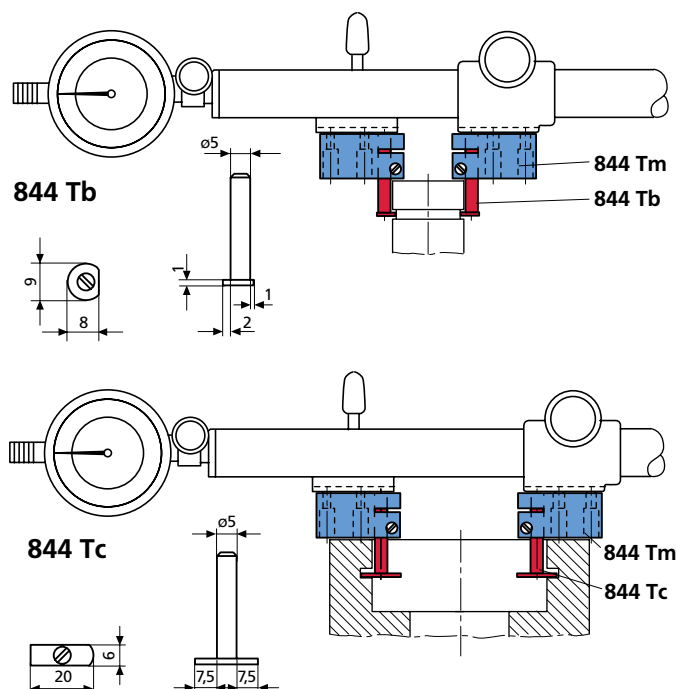
- With round measuring blades
- Ideal for workpieces that have a recess up to 2 mm in depth

844 Tc

- With long measuring blades
- Ideal for workpieces that have a recess up to 7.5 mm in depth

Cat. no.	Blade Length mm	Blade dia. mm	Range of adjustment mm	Order no.
844 Tb	—	9	0 – 10	4500015*
844 Tc	20	—	0 – 10	4500114*
	20	—	40 – 50	4500115*

* 2 pieces are required



Measuring external and internal tooth profiles

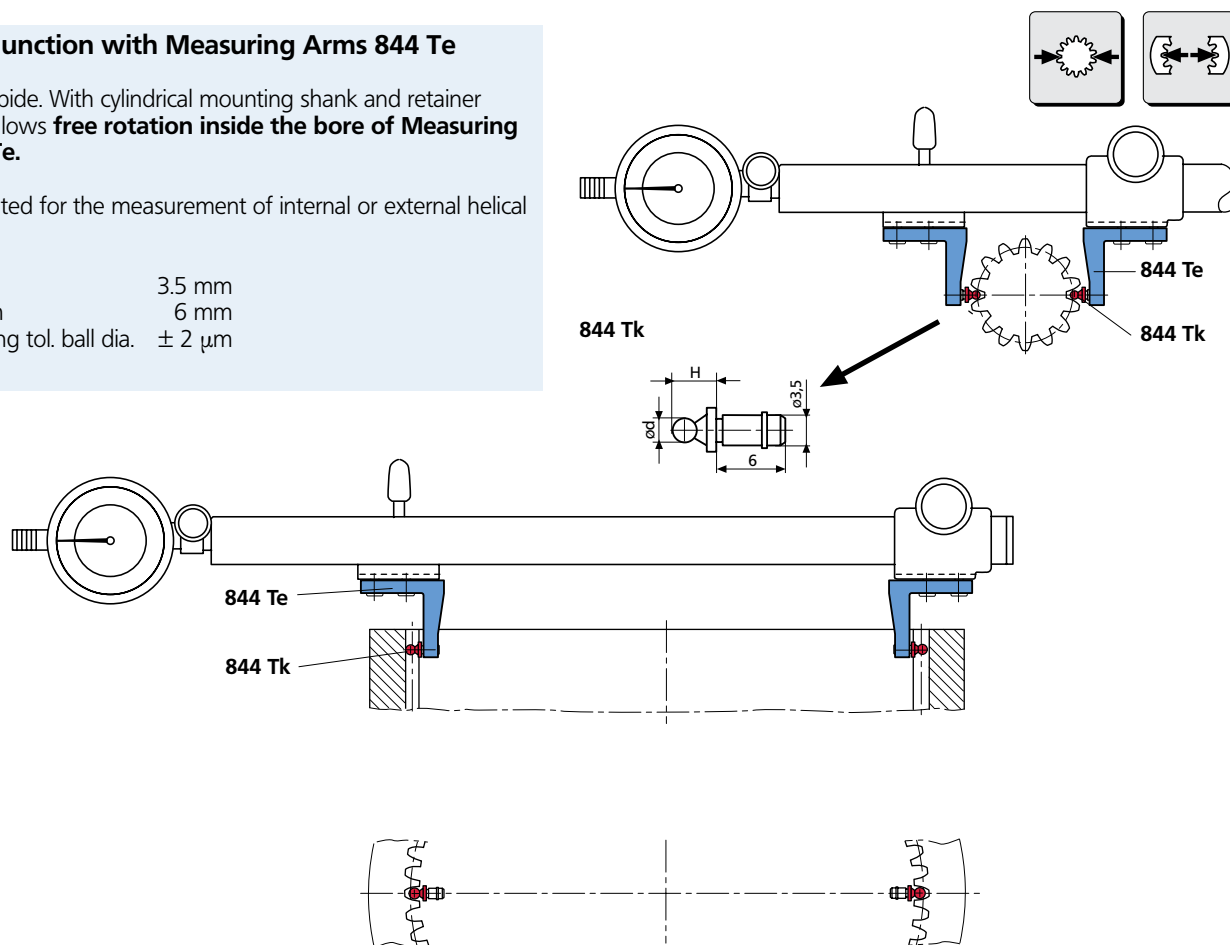
Ball Anvils 844 Tk

Use in conjunction with Measuring Arms 844 Te

- Made of carbide. With cylindrical mounting shank and retainer ring which allows **free rotation inside the bore of Measuring Arms 844 Te**.

Especially suited for the measurement of internal or external helical gear wheels.

Shank dia. 3.5 mm
Shank length 6 mm
Manufacturing tol. ball dia. $\pm 2 \mu\text{m}$



dia. d mm	H mm	Order no.*	dia. d mm	H mm	Order no.*	dia. d mm	H mm	Order no.*	dia. d mm	H mm	Order no.*
0.5	3.0	4502620	1.5	4.0	4500352	2.438	4.9	4502646	4.5	7.0	4500360
0.551	3.1	4502621	1.524	4.0	4502635	2.5	5.0	4500356	4.835	7.3	4502655
0.62	3.1	4502622	1.54	4.0	4502636	2.667	5.2	4502647	5	7.5	4500361
0.623	3.1	4502623	1.6	4.1	4502637	2.704	5.2	4502648	5.25	7.8	4502656
0.63	3.1	4502624	1.65	4.2	4502638	2.713	5.2	4502649	5.486	8.0	4502657
0.722	3.2	4502625	1.7	4.2	4502639	2.721	5.2	4502650	5.5	8.0	4500362
0.862	3.4	4502626	1.75	4.3	4500353	2.743	5.2	4502651	6	8.5	4500363
0.895	3.4	4502627	1.782	4.3	4502640	2.75	5.3	4500618	6.096	8.6	4502658
0.965	3.5	4502628	1.8	4.3	4502641	3	5.5	4500357	6.35	8.9	4502545
1	3.5	4500350	1.829	4.3	4502642	3.048	5.5	4502652	6.5	9.0	4502542
1.1	3.6	4502629	1.9	4.4	4502643	3.25	5.8	4502541	7	9.5	4502547
1.118	3.6	4502630	2	4.5	4500354	3.4	5.9	4502653	8	10.5	4502548
1.125	3.6	4502631	2.032	4.5	4502543	3.5	6.0	4500358	9	11.5	4502549
1.25	3.8	4500351	2.25	4.8	4502540	3.658	6.2	4502654	10	12.5	4502550
1.35	3.9	4502632	2.284	4.8	4502644	4	6.5	4500359			
1.372	3.9	4502633	2.3	4.8	4502544						
1.385	3.9	4502634	2.386	4.9	4502645						

* 2 pieces are required

Further sizes are available upon request (material: steel or carbide)

Measuring external and internal tooth profiles

Cylindrical Measuring Pins 844 Tz

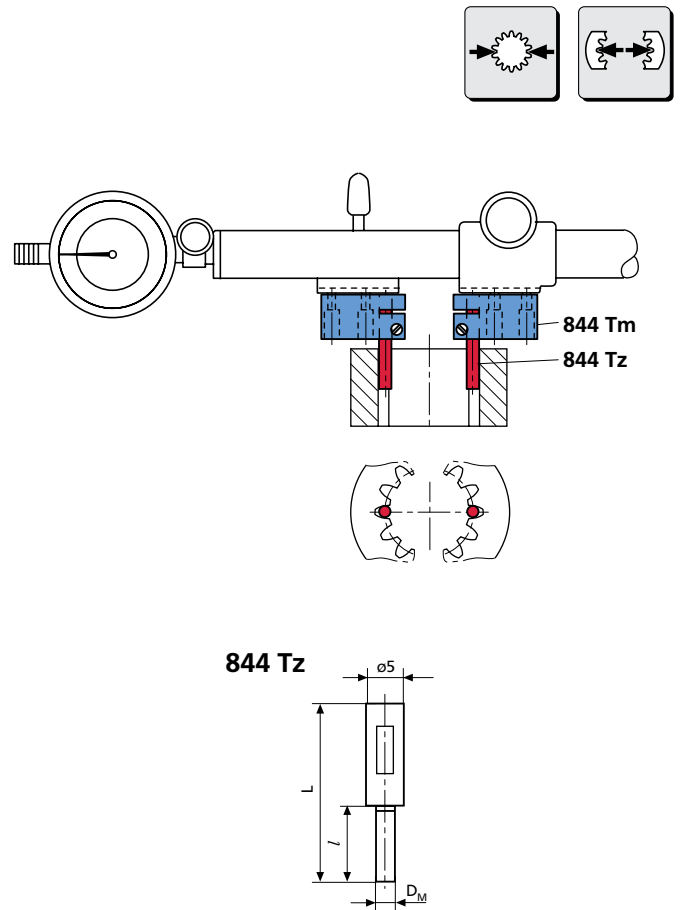
Use in conjunction with Mounting Attachments 844 Tm

- Made from steel, with shank for mounting into the Mounting Attachment 844 Tm.

Manufacturing tol. $\pm 2 \mu\text{m}$

dia. D_M mm	Length l mm	Length L mm	Order no.
1	6	19.5	4500500
1.25	6	19.5	4500501
1.5	6	19.5	4500502
1.75	10	23.5	4500503
2	10	23.5	4500504
2.5	10	23.5	4500506
3	15	28.5	4500507
3.5	15	28.5	4500508
4	15	28.5	4500509
4.5	20	33.5	4500510
5	20	33.5	4500511
5.5	20	33.5	4500512
6	20	33.5	4500513

Further sizes are available upon request (material: Steel)



Measuring external threads

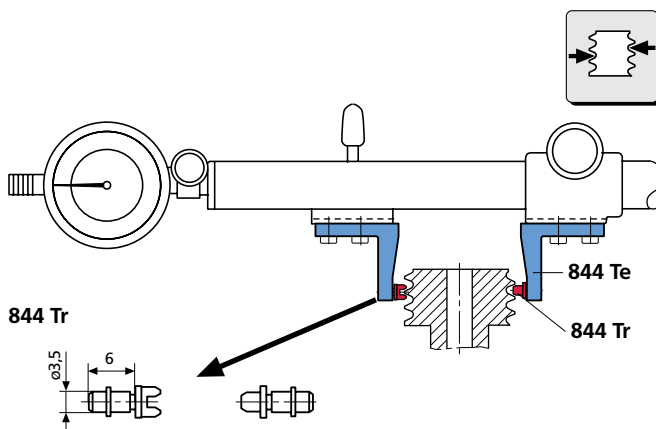
Interchangeable Anvils 844 Tr

Used in conjunction with Measuring Arms 844 Te

- Pair consists of V-anvil and blade

For pitch diameters

Shank dia. 3.5 mm
Shank length 6 mm



Metric external thread (60°)			Whitworth external thread (55°)			American UST external thread (60°)		
Pitch	V-anvil	Blade	Pitch range	V-anvil	Blade	Pitch range	V-anvil	Blade
mm	Order no.	Order no.	tpi	Order no.	Order no.	tpi	Order no.	Order no.
0.5 - 0.7	4501000	4501200	40 - 32	4501007	4501207	40 - 32	4501018	4501418
0.7 - 1	4501001	4501201	32 - 24	4501008	4501208	32 - 24	4501019	4501419
1.25 - 2	4501002	4501202	24 - 18	4501009	4501209	24 - 18	4501020	4501420
2 - 3.5	4501003	4501203	18 - 14	4501010	4501210	18 - 14	4501021	4501421
3.5 - 5	4501004	4501204	14 - 10	4501011	4501211	14 - 10	4501022	4501422
5 - 7	4501005	4501205	10 - 7	4501012	4501212	10 - 7	4501023	4501423
7 - 9	4501006	4501206	7 - 4.5	4501013	4501213	7 - 4.5	4501024	4501424
			4.5 - 3	4501014	4501214	4.5 - 3	4501025	4501425
			3 - 2.5	4501015	4501215			

For pitch diameters

Trapezoid external thread acc. to DIN 103

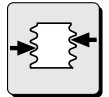
Pitch	V-anvil	Blade
mm	Order no.	Order no.
1	4501150	4501350
1.5	4501151	4501351
2	4501152	4501352
3	4501153	4501353
4	4501154	4501354
5	4501155	4501355
6	4501156	4501356
7	4501157	4501357
8	4501158	4501358
9	4501159	4501359
10	4501160	4501360
12	4501161	4501361
14	4501162	4501362
16	4501163	4501363
18	4501164	4501364
20	4501165	4501365

Measuring external threads

Interchangeable Anvils 844 Tr

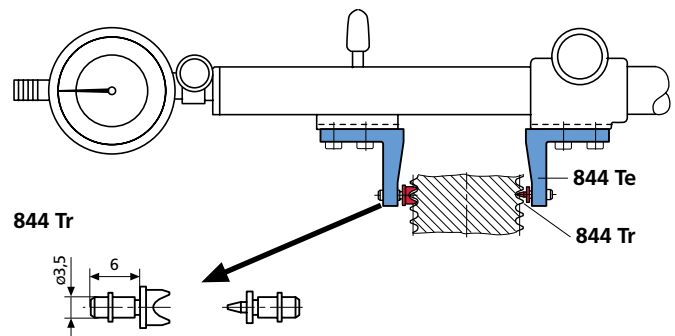
Used in conjunction with Measuring Arms 844 Te

- Pair consists of V-anvil and blade
- Each pitch requires a separate V-anvil
- Blade can be used for several pitches



For root diameters

Shank dia. 3.5 mm
Shank length 6 mm



Metric external thread (60°)			Whitworth external thread (55°) American UST external thread (60°)		
Pitch	V-anvil	Blade	Pitch	V-anvil	Blade
mm	Order no.	Order no.	range tpi	Order no.	Order no.
0.5	4501026	4501232	40	4501083	4501284
0.6	4501027		36	4501108	
0.7	4501028		32	4501084	
0.75	4501029		28	4501085	
0.8	4501030		26	4501086	4501290
0.9	4501031	4501235	24	4501087	
1	4501032		22	4501088	
1.25	4501033		20	4501089	
1.5	4501034		19	4501090	4501293
1.75	4501035		18	4501091	
2	4501036	4501238	16	4501092	
2.5	4501037		14	4501093	
3	4501038		12	4501094	4501296
3.5	4501039		11	4501095	
4	4501040		10	4501096	
4.5	4501041	4501241	9	4501097	4501299
5	4501042		8	4501098	
5.5	4501043		7	4501099	
6	4501044		6	4501100	
7	4501045	4501247	5	4501101	4501302
8	4501046		4.5	4501102	
9	4501047		4	4501103	
			3.5	4501104	4501306
			3.25	4501105	
			3	4501106	

Measuring internal threads

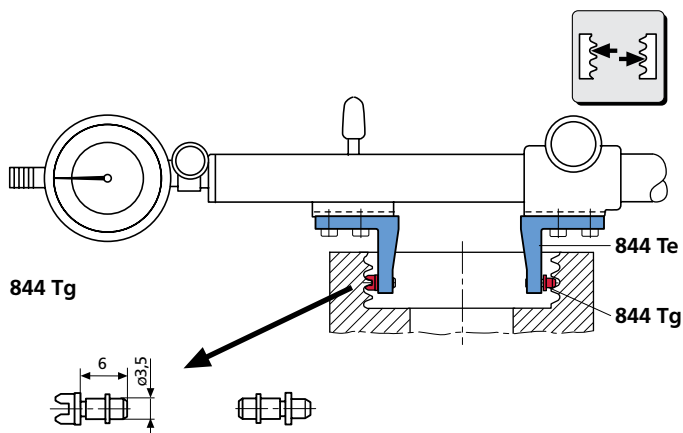
Interchangeable Anvils 844 Tg

Used in conjunction with Measuring Arms 844 Te

- Pair consists of V-anvil and tapered anvil.

For pitch diameter

Shank dia. 3.5 mm
Shank length 6 mm



Metric internal thread (60°)			Whitworth internal thread (55°)			American UST internal thread (60°)		
Pitch	V-anvil	Tapered anvil	Pitch range	V-anvil	Tapered anvil	Pitch range	V-anvil	Tapered anvil
mm	Order no.	Order no.	tpi	Order no.	Order no.	tpi	Order no.	Order no.
0.5 - 0.7	4174300	4174600	40 - 32	4174343	4174643	40 - 32	4174415	4174615
0.7 - 1	4174301	4174601	32 - 24	4174344	4174644	32 - 24	4174416	4174616
1.25 - 2	4174302	4174602	24 - 18	4174345	4174645	24 - 18	4174417	4174617
2 - 3.5	4174303	4174603	18 - 14	4174346	4174646	18 - 14	4174418	4174618
3.5 - 5	4174304	4174604	14 - 10	4174347	4174647	14 - 10	4174419	4174919
5 - 7	4174305	4174605	10 - 7	4174348	4174648	10 - 7	4174420	4174620
7 - 9	4174306	4174606	7 - 4.5	4174349	4174649	7 - 4.5	4174421	4174621
			4.5 - 3	4174350	4174650	4.5 - 3	4174422	4174622
			3 - 2.5	4174351	4174651			

Trapezoid internal thread acc. to DIN 103

Pitch	V-anvil	Tapered anvil
mm	Order no.	Order no.
1	4501830	4501831
1.5	4501832	4501833
2	4501834	4501835
3	4501836	4501837
4	4501838	4501839
5	4501840	4501841
6	4501842	4501843
7	4501844	4501845
8	4501846	4501847
9	4501848	4501849
10	4501850	4501851
12	4174961	4174981
14	4174962	4174982
16	4174963	4174983
18	4174964	4174984
20	4174965	4174985

Measuring internal threads

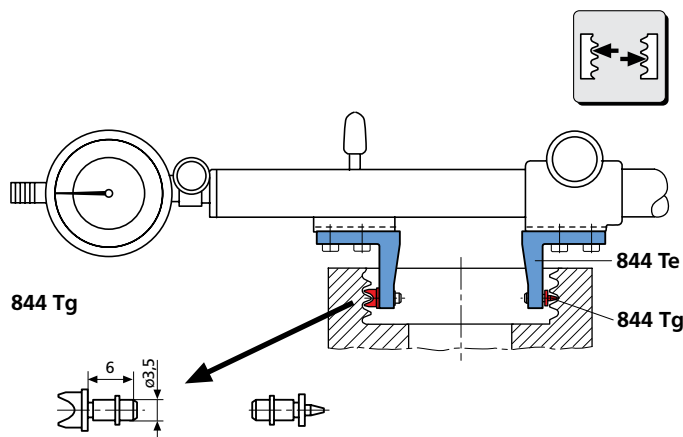
Interchangeable Anvils 844 Tg

Used in conjunction with Measuring Arms 844 Te

- Pair consists of V-anvil and pointed anvil
- Each pitch requires a separate V-anvil
- Pointed anvil can be used for several pitches.

For root diameters of internal threads

Shank dia. 3.5 mm
Shank length 6 mm



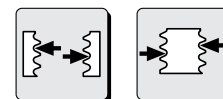
Metric internal thread (60°)			Whitworth internal thread (55°) American UST internal thread (60°)		
Pitch	V-anvil	Pointed anvil	Pitch	V-anvil	Pointed anvil
mm	Order no.	Order no.	range tpi	Order no.	Order no.
0.5	4174313	4174619	40	4174431	4174632
0.6	4174314		36	4174427	
0.7	4174315		32	4174432	
0.75	4174316		28	4174433	
0.8	4174317		26	4174435	
0.9	4174318	4174623	24	4174436	4174939
1	4174319		22	4174437	
1.25	4174321		20	4174438	
1.5	4174322		19	4174439	
1.75	4174323		18	4174440	4174943
2	4174325	4174627	16	4174442	
2.5	4174326		14	4174443	
3	4174327		12	4174445	
3.5	4174329		11	4174446	
4	4174330	4174631	10	4174447	4174949
4.5	4174331		9	4174449	
5	4174333		8	4174450	
5.5	4174334		7	4174451	
6	4174335		6	4174453	4174655
7	4174337	4174639	5	4174454	
8	4174338		4.5	4174455	
9	4174339		4	4174457	
			3.5	4174458	4174660
			3.25	4174459	
			3	4174460	

Measuring external and internal threads

Interchangeable Measuring Rollers 844 Tv

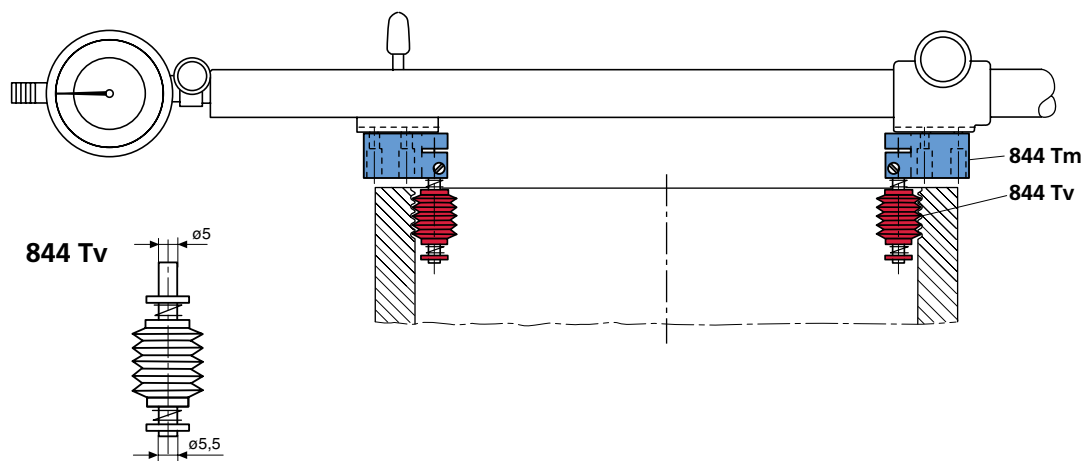
To be used in conjunction with Mounting Attachment 844 Tm

- Mounting shank fits into Mounting Attachment 844 Tm
 - Each has two springs to alleviate the positioning on the correct pitch thread
- Mounting Shank dia.: 5 mm



Application:

To determine the pitch diameter of external and internal threads.



Pitch mm	Metric Thread (60°) Unit quantity	Order no.
1	Pair	4501711
2	Pair	4501715
2.5	Pair	4501716
3.5	Pair	4501718
4	Pair	4501719
5	Pair	4501721
6	Pair	4501723

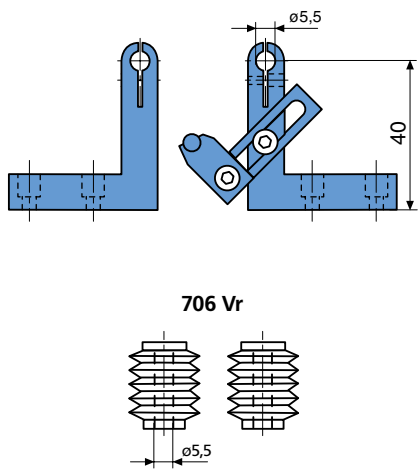
Note: Interchangeable Measuring Rollers for further thread pitches (metric 60°) as well as Whitworth and UST threads are also available upon request.

Measuring external threads

Measuring Roller Holder 844 Ty

- With location bolts for the Measuring Rollers 706 Vr
- With stop and stop pin

Order no. 4502463



Stand 844 Tf for Universal Measuring Instrument 844 T, see page 10-20.

Thread Measuring Rollers 706 Vr

To be used in conjunction with Measuring Roller Holder 844 Ty

- For pitch diameter

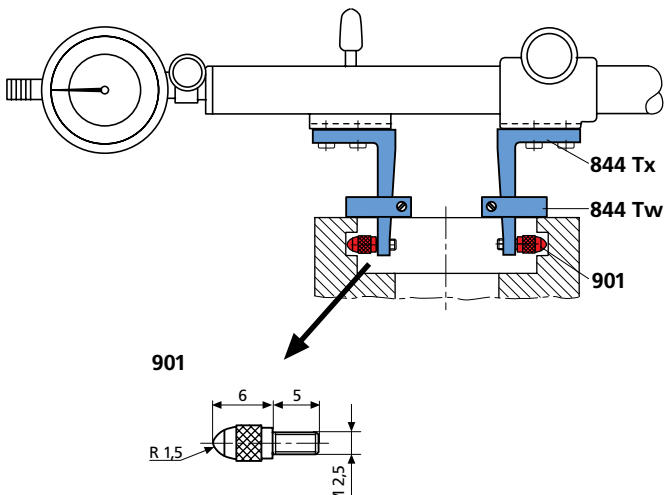
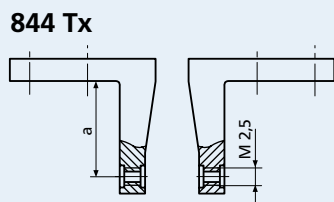
Thread Measuring Rollers (60°)		
Pitch mm	Unit quantity	Order no.
1	Pair	4521111
2	Pair	4521115
3	Pair	4521117
4	Pair	4521119
5	Pair	4521121
6	Pair	4521123

Note: Interchangeable Measuring Rollers for further thread pitches (metric 60°) as well as Whitworth and UST threads are also available upon request.

Measuring external and internal dimensions

Measuring Arms 844 Tx and associated Anvils

- With an M 2.5 connection thread to screw in the interchangeable anvils
- For internal and external dimensions on specially formed work pieces
- Measuring arms on the measuring arm holder are reversible, therefore extending the range of measurement / application



Throat depth a mm	25	50	100
Order no.	4500080	4500081	4500082*

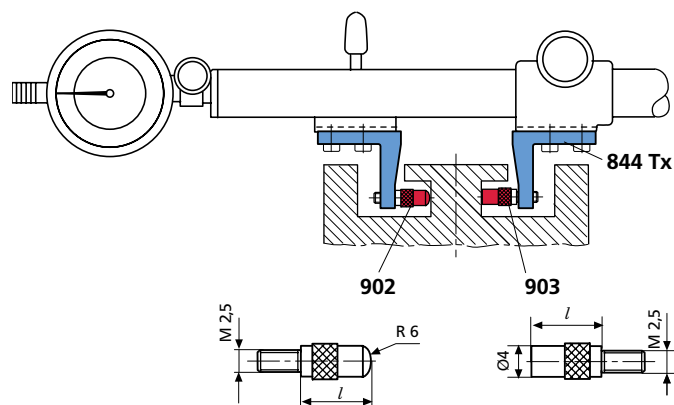
* Not suitable for Digital Caliper 25 ES

Standard Contact Points / Anvils 901, Ball dia. 3 mm

Cat. no.		Order no.
901	with Steel ball	4360001
901 H	with Carbide ball	4360002
901 R	with Ruby ball	4360003

Spherical Contact Points 902/Flat Contact Points 903

	902 Steel	902 H Carbide meas. face	903 Steel	903 H Carbide- tipped
Length l mm	Order no.	Order no.	Order no.	Order no.
4	4360007	—	4360070	—
6	4360009	—	4360071	4360101
8	4360010	4360040	4360072	4360102
10	4360011	4360041	4360073	4360103
12	4360012	4360042	4360074	4360104
15	4360013	4360043	4360075	4360105
20	4360014	4360044	4360076	4360106
25	4360015	4360045	4360077	4360107
30	4360016	4360046	4360300	4360110
35	4360017	4360047	4360078	4360108
40	4360019	4360049	4360310	4360111
45	4360026	4360050	4360303	—
50	4360018	4360048	4360079	4360109
55	4360031			
65	4360035			
75	4360020			
85	4360036			
95	4360029			



Measuring external and internal dimensions

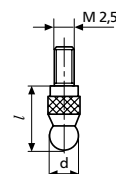
Measuring Arms 844 Tx and associated Anvils

Ball Contact Points 906 H

With carbide ball. manufacturing tolerance ball dia. 0/-6 μm

Ball dia. d mm	l mm	Order no.	Ball dia. d mm	l mm	Order no.
1	8.5	4360150	5.5	9	4360161
1.25	8.5	4360151	6	9	4360162
1.5	8.5	4360152	6.35 (1/4")	9	4360163
1.75	8.5	4360153	6.5	10	4360164
2	8.5	4360154	7	10	4360165
2.5	8.5	4360155	7.5	11	4360166
3	8.5	4360156	8	11	4360167
3.5	8.5	4360157	8.5	12	4360168
4	8.5	4360158	9	12	4360169
4.5	8.5	4360159	10	13	4360170
5	9	4360160			

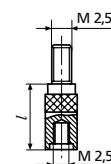
906 H



Measuring Spindle Extensions 912

Length l mm	Order no.	Length l mm	Order no.
10	4360250	35	4360254
15	4360251	50	4360255
20	4360252	75	4360256
25	4360253	100	4360257

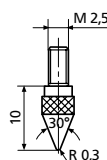
912



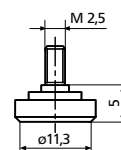
Special Contact Points / Anvils

	Order no.
Conical Contact Points , carbide tipped	904 H 4360131
Flat Contact Points* , steel, A = 1 cm ²	907 4360200
carbide tipped, dia. 7 mm	907 H 4360201
Spherical Contact Points , steel	908 4360210
carbide tipped	908 H 4360211
Pin Contact Point , carbide tipped, dia. 1 mm, flat	911 H 4360240
Flat Contact Point , for mounting a pin gage holder 426 M for measuring threads using the 3 wire method	913 4360400

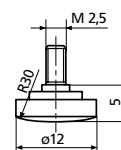
904 H



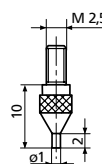
907



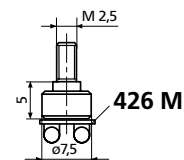
908 H



911 H



913



* When using an anvil with a flat contact face the opposite anvil must have an spherical contact face.

Note:

The Order no's on pages 10-18 and 10-19 only related to one piece.

Scribing with Digital Universal Caliper 25 ES

Scriber Point 25 Es

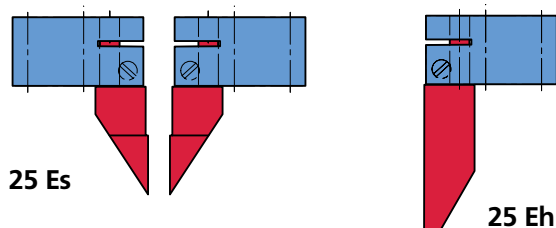
- For straight lines and circles
- Made of hardened steel

Order no. 4118530

Counter Holder 25 Eh

- In conjunction with 25 Es to scribe straight lines, for example; along an edge
- Made of hardened steel

Order no. 4118535

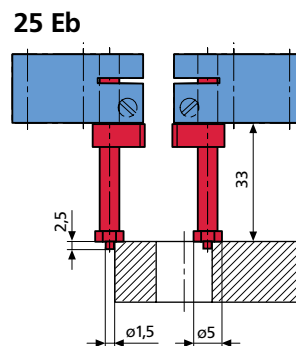


Anvils for Distances for Digital Universal Caliper 25 ES

Mounting Inserts 25 Eb

- For distances between the center of bores and between the center of a bore and an edge
- Carbide tipped
- Longest distance between hole centers corresponds with half the measuring range

Order no. 4118525



Stand 844 Tf for Universal Measuring Instrument 844 T

- For stationary use of the Universal Measuring Instrument 844 T Measuring range 25 - 110 mm
- User has both hands free for insertion of work piece
- The indicating instrument is always in the operator's line of vision
- Strong, stable cast base with clamping device for Universal Measuring Instrument

Order no. 4450512



I.D./O.D. Indicator Gage 36 B for Internal and External Dimensions

The economical way to check outside diameters on the shop floor.

**EMD-36B-10****Features**

- Adjustable retraction of sensitive contact allows measurement of grooves and races. Retraction, normally set at 6 mm / 0.25", is adjustable to 10 mm / 0.40".
- Frictionless reed-spring (pantograph) motion transfer for repeatability.
- Gaging pressure is adjustable from 0 - 35 N / 0 - 8 lb.
- Two styles available. 2-point "T"-Plate or 3-point "V"-Plate.
- Two sizes available.
- Adjustable base: Gage can be positioned on any angle from horizontal to vertical.
- Variety of readout devices available.
- Reverse the top-plate to change from I.D. to O.D. measurement.
- Supplied with JW-9 Jaws.

Indicating Instruments

All indicating instruments that has a 8 mm mounting shank may be used. Recommended are:

Catalog no.	Resolution switchable	Order no.
MarCator 1087 R	0.0005 / 0.001 / 0.002 / 0.005 / 0.01 mm	4337660
MarCator 1087 R	.00002" / .00005" / .00001" / .0002" / .0005"	4337661

Technical Data

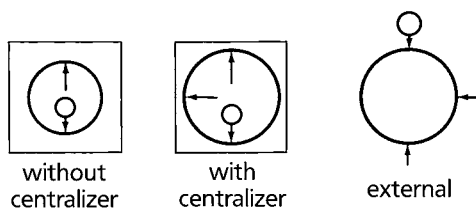
Style	Capacity I.D.	O.D.	Order no. with .0001" Dial Indicator	Order no. with 0.002 mm Dial Indicator	Order no.* with Max μ m [®] ///	Order no.* with Max μ m [®] /// & Output	Order no.* with μ Max μ m & Output	Order no.*** w/o Indicator, metric 8 mm mount shank
"T" Plate	.75 - 3.5" 19 - 89 mm	.25 - 5" 6 - 127 mm	36B-10	36B-10M	EMD-36B-10	EMD-36B-10D	EDI-36B-10	2003200
"T" Plate	.75 - 7.75" 19 - 197 mm	.25 - 8.75" 6 - 222 mm	36B-20	36B-20M	EMD-36B-20	EMD-36B-20D	EDI-36B-20	2003201
"V" Plate	.812 - 4.625" 21 - 117 mm	.312 - 5" 8 - 127 mm	36B-9	36B-9M		EMD-36B-9D	EDI-36B-9	
"V" Plate	.812 - 9" 21 - 229 mm	.312 - 9.5" 8 - 241 mm	36B-19	36B-19M		EMD-36B-19D	EDI-36B-19	

* Selectable Resolution

	Order no.
36B-10 with 1087B and Y & T Plate Sets	2061657
36B-20 with 1087B and Y & T Plate Sets	2061658

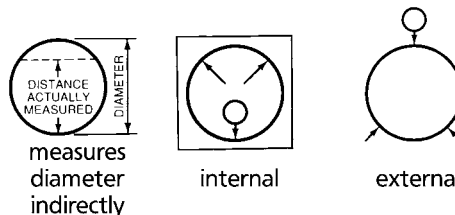
I.D./O.D. Indicator Gage 36 B for Internal and External Dimensions

"T" Plates



"T"-plates give a diameter reading directly across the diameter. A third contact may be used as a side-stop or centralizer.

"V" Plates



"V"-plates are self-centralizing. Three jaws are used and the measurement is of the distance between the sensitive contact and the chord formed by the two reference contacts. This measurement bears a direct relationship to the diameter and compensation is made by a special ratio indicator so diameter is read directly.

Used to inspect parts with odd number lobing conditions.

Jaw Sets

Model numbers on the preceding page include a set of **Model JW-9** Jaws. **Model JW-58** Jaws (tungsten carbide)



JW-9 Jaws (normally furnished)

Order no. (3 jaw set)	Adjustment Height	Material: Contact and Rest Surface	Replacement Contact Pins (3 required)
JW-9	0.79-19 mm / .031-.75"	Steel	PS-55
JW-58	0.79-18 mm / .031-.72"	Carbide	PS-226
2220461*	0.79-18 mm	Steel	2225694

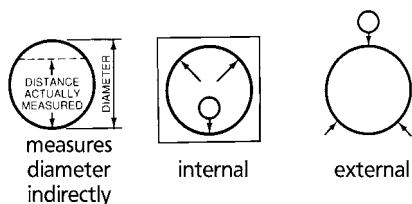
* Normally furnished with Metric Version.

For special jaw configurations or for other indicators contact Mahr Federal Customer Resources Center.

Maxum® III Indicator for "V"-Plate Models

Digital Range	Stem Length	Order no.
$\pm 1 \text{ mm} / \pm .040''$ or $\pm .199 \text{ mm} / \pm .020''$	17 mm / .670"	2033145*

* Maxum® III 4:5 ratio model includes Data Output (6 pin) and user selectable setup for range, resolution, units and measuring direction.



EMD-36B-19D I.D./O.D. Gage



I.D./O.D. Indicator Gage 36 B for Internal and External Dimensions**Special Contacts: Steel**

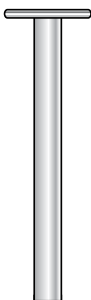
Special steel ball contacts can be made in a variety of different diameters for your measurement applications.

**Special Contacts: Tungsten Carbide**

Side mounted Tungsten Carbide spherical contacts can be made for measuring internal and external gears and splines.

**Special Contacts: Doughnut**

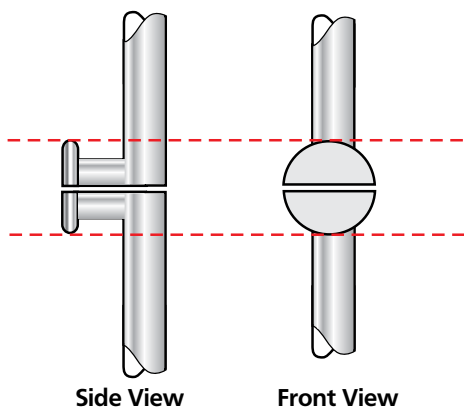
Specially designed Doughnut shaped contacts are used, as an example, in the bearing industry calling out for wider than normal contacts to reach into bearing raceways.

**Special Contacts: TC Ball**

Spherical diameter tips are ideal for measuring inside or outside radial formed recesses of precision parts.

**Special Contacts: Pie Plate**

Special jaws shaped like large half-discs, are used by the plastic industry to accurately measure semi-flexible round cups where reduced deflection is important.



Side View

Front View

JW-58 w/TC Wear Pads

Specially designed jaws supplied with Tungsten Carbide wear surfaces provide extra long jaw life.

**Additional Contacts****844T Contact Points for use with 36B Gage**

We have added to the list of standard contacts by modifying the JW-9 jaws to accept some of the Universal Gage 844T contacts. This modification was done by reaming out the jaws from .186" to .196" diameters so that they will accept the contacts that are used with the 844TM holders.

With the added addition of the anvils below we have more measurement possibilities with the 36B gage such as Pitch Diameters of gears, Threads (Metric, Whitworth and American UST), Taper diameters and recesses.

For cylindrical pins please see catalog pages 10-11; for threads please refer to catalog page 10-16.

		Order no.
Flat shoulder anvils	Sold as a pair	4500050
Inside taper anvils	Sold as a pair	4500046
Measuring blades	Sold as a pair	4500114
Cylindrical Pins	Sold as a pair	See page 10-11
Semi-cylindrical anvils	Sold as a pair	4500055
Outside taper anvils	Sold as a pair	4500047
Measuring blades	Sold as each	4500015
External / internal threads	Sold as a pair	See page 10-16

WWW.MAHR.COM

- 0 +

Mahr

E X A C T L Y



Azma Sanat Grad

آزما صنعت گراد

تست و اندازه گیری . تجهیزات . مشاوره

Unit 3 - 2ndfloor- No.24 West Shahid Ghandi St.
North Sohrevardi Ave. Tehran . Iran
Tel : +98 21 88745209 , 86030765
Fax: +98 21 88764890

تهران - خیابان سهروردی شمالی - خیابان شهید قندی غربی
پلاک ۲۴ - ورودی غربی - طبقه دوم - واحد ۳
تلفن : ۸۸۷۴۵۲۰۹ ، ۸۶۰۳۰۷۶۵
فاکس : ۸۸۷۶۴۸۹۰

www.asgradco.com

info@asgradco.com