

INTERNAL MEASURING INSTRUMENTS

It is often difficult to find a solution perfectly adapted to the measurement of internal dimensions which can be very complex. Sylvac and Bowers joined forces several decades ago to offer the most comprehensive range of instruments on the market for virtually any application. Whether you need to measure very precise, blind, deep bores or other internal elements such as grooves, threads, flutes, etc., you will certainly find the key to your problem in this chapter.

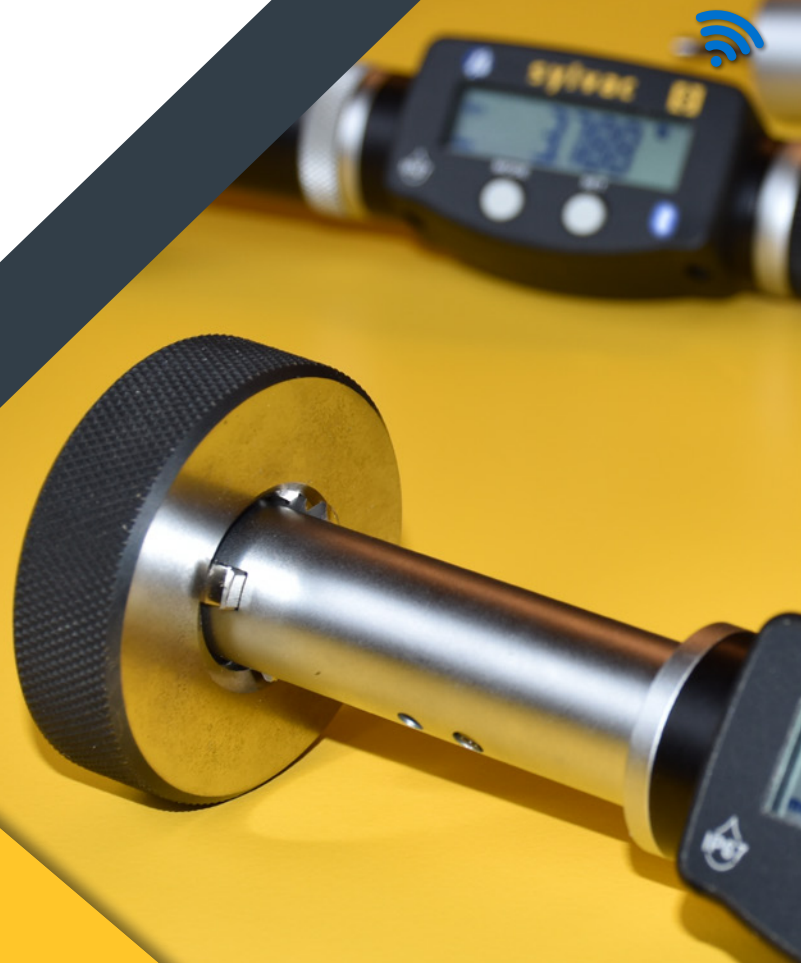
GENERAL CHARACTERISTICS :

- **Powered by lithium battery type CR2032**
- **Absolute measuring system S.I.S**
- **Automatic sleep and wake-up**
- **mm/inch conversion on all models**
- **Working temperature +5° to +40°C**



Steen Metrology Systems

Experts in Industrial Metrology



Bore gauges

Xtreme 3

DESCRIPTION

SMART

- New unit with integrated Bluetooth® system
- Display resolution 0.001 mm, digit height 9 mm
- Storage of the size of 4 calibration rings
- Interchangeable measuring heads with hard metal 2 points (Ø 2 to 6 mm) and 3 points (from Ø 6 mm) contact points
- Possibility to measure blind holes with the Ø 2 to 6 mm heads and from Ø 12.5 mm
- Instruments available in 2 versions:
 - XTD : unit with micrometric drum
 - XTH : pistol type unit, with quick retraction handle
- Measuring range Ø 2 to 300 mm
- Optional extensions available for measuring deep holes up to 2000 mm
- Calibration ring and certificates included with each individual instrument
- Special measuring heads for threads, grooves, splines, etc. available on request
- Additional Proximity data output
- Each instrument is delivered in a wooden box containing all items
- IP67 protection

Output cable Proximity to USB (926-6721) or RS232 (926-6723) and Bluetooth® Wireless technology

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*** Up to 8 instruments connected per dongle #981-7100**
 More informations on How to use Bluetooth® leaflet SYL_1401_EN_BT





Bore gauges


Xtreme 3

TECHNICAL SPECIFICATIONS INDIVIDUAL INSTRUMENTS XT3D

SMART

XT3D 	950-6006	950-6007	950-6008	950-6009	950-6010	950-6011	950-6012	950-6013
Meas. range mm	2-2.5	2.5-3	3-4	4-5	5-6	6-8	8-10	10-12.5
Type	XT3D BT 1M	XT3D BT 2M	XT3D BT 3M	XT3D BT 4M	XT3D BT 5M	XT3D BT 6M	XT3D BT 8M	XT3D BT 10M
Depth mm	9	9	12	18	18	58	58	58
Max. Error μm	4	4	4	4	4	4	4	4
\emptyset Incl. ring mm	2.5	2.5	4.0	4.0	5.0	8.0	8.0	12.5

XT3D 	950-6014	950-6015	950-6016	950-6017	950-6018	950-6019	950-6020	950-6021
Meas. range mm	12.5-16	16-20	20-25	25-35	35-50	50-65	65-80	80-100
Type	XT3D BT 12M	XT3D BT 16M	XT3D BT 20M	XT3D BT 25M	XT3D BT 35M	XT3D BT 50M	XT3D BT 65M	XT3D BT 80M
Depth mm	62	62	66	66	80	80	80	100
Max. Error μm	4	4	4	4	4	5	5	5
\emptyset Incl. ring mm	12.5	20.0	20.0	35.0	35.0	65.0	65.0	80.0

XT3D 	950-6022	950-6023	950-6024	950-6025	950-6026	950-6027	950-6028	950-6029
Meas. range mm	100-125	125-150	150-175	175-200	200-225	225-250	250-275	275-300
Type	XT3D BT 100M	XT3D BT 125M	XT3D BT 150M	XT3D BT 175M	XT3D BT 200M	XT3D BT 225M	XT3D BT 250M	XT3D BT 275M
Depth mm	115	115	115	115	118	118	118	118
Max. Error μm	6	6	7	7	8	8	9	9
\emptyset Incl. ring mm	125.0	125.0	175.0	175.0	225.0	225.0	275.0	275.0



Bore gauges

Xtreme 3

TECHNICAL SPECIFICATIONS INDIVIDUAL INSTRUMENTS XT3H

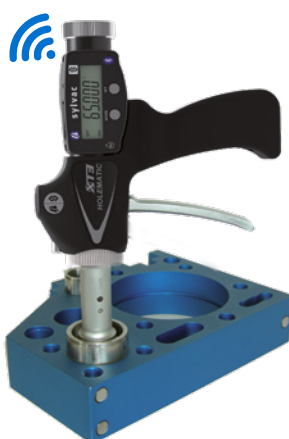
SMART

XT3H	954-6006	954-6007	954-6008	954-6009	954-6010	954-6011	954-6012	954-6013
Meas. range mm	2-2.5	2.5-3	3-4	4-5	5-6	6-8	8-10	10-12.5
Type	XT3H BT 1M	XT3H BT 2M	XT3H BT 3M	XT3H BT 4M	XT3H BT 5M	XT3H BT 6M	XT3H BT 8M	XT3H BT 10M
Depth	9	9	12	18	18	58	58	58
Max. Error μm	4	4	4	4	4	4	4	4
\emptyset Incl. ring mm	2.5	2.5	4.0	4.0	5.0	8.0	8.0	12.5

XT3H	954-6014	954-6015	954-6016	954-6017	954-6018	954-6019	954-6020	954-6021
Meas. range mm	12.5-16	16-20	20-25	25-35	35-50	50-65	65-80	80-100
Type	XT3H BT 12M	XT3H BT 16M	XT3H BT 20M	XT3H BT 25M	XT3H BT 35M	XT3H BT 50M	XT3H BT 65M	XT3H BT 80M
Depth	62	62	66	66	80	80	80	85
Max. Error μm	4	4	4	4	4	5	5	5
\emptyset Incl. ring mm	12.5	20.0	20.0	35.0	35.0	65.0	65.0	80.0

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XT3H	954-6022	954-6023	954-6024	954-6025	954-6026	954-6027	954-6028	954-6029
Meas. range mm	100-125	125-150	150-175	175-200	200-225	225-250	250-275	275-300
Type	XT3H BT 100M	XT3H BT 125M	XT3H BT 150M	XT3H BT 175M	XT3H BT 200M	XT3H BT 225M	XT3H BT 250M	XT3H BT 275M
Depth	100	100	100	100	100	103	103	103
Max. Error μm	6	6	7	7	8	8	9	9
\emptyset Incl. ring mm	125.0	125.0	175.0	175.0	225.0	225.0	275.0	275.0





Bore gauges

Xtreme 3


STANDARD DELIVERY XT3D AND XT3H INDIVIDUAL


SMART

- Instrument according to technical specifications
- Wooden box (XT3D : from 150 mm = 2 box; XT3H : from 200 mm = 2 box) ¹⁾
- Rings according to technical specifications + UKAS certificate
- 1 x digital display XT3DU or XT3PG
- Lithium battery CR2032 included
- Instruction manual
- Calibration certificate

¹⁾ Fumigated compatible ISPM 15 and NIMP 15

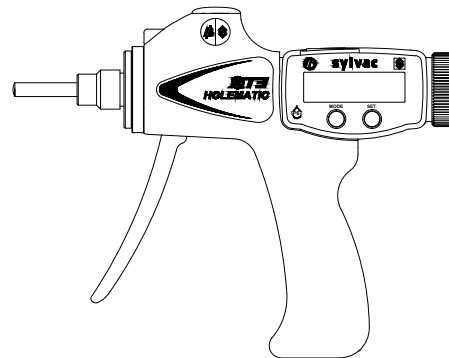
TECHNICAL SPECIFICATIONS ELECTRONIC UNITS XT3DU AND XT3PG

XT3DU 	951-6001	951-6002	951-6003	951-6004	951-6005	951-6006	951-6007
Meas. range mm	2-6	6-10	10-20	20-50	50-100	100-300	200-300
Type	XT3DU BT 2M	XT3DU BT 6M	XT3DU BT 10M	XT3DU BT 20M	XT3DU BT 50M	XT3DU BT 100M	XT3DU BT 200M
Thread	1/4"x 40 TPI	M5 x 0.5	5/16"x 40 TPI	5/8"x 24 TPI	5/8"x 24 TPI	5/8"x 24 TPI	5/8"x 24 TPI

XT3PG 	955-6001	955-6002	955-6003	955-6004
Meas. range mm	2-6	6-20	20-100	100-300
Type	XT3PG BT 01M	XT3PG BT 02M	XT3PG BT 03M	XT3PG BT 04M
Thread	1/4"x 40 TPI	5/16"x 40 TPI	5/8"x 24 TPI	5/8"x 24 TPI



XT3DU



XT3PG

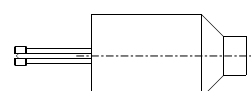
Bore gauges

Xtreme 3

TECHNICAL SPECIFICATIONS MEASURING HEADS XTHD

SMART

	953.2496	953.2497	953.2498	953.2499	953.2500
Meas. range mm	2-2.5	2.5-3	3-4	4-5	5-6
Type	XTHD1	XTHD2	XTHD3	XTHD4	XTHD5
Execution	2 points / ST	2 points / ST	2 points / ST	2 points / ST	2 points / ST



2 points head

	953.2501	953.2502	953.2503	953.2504	953.2505
Meas. range mm	6-8	8-10	10-12.5	12.5-16	16-20
Type	XTHD6	XTHD8	XTHD10	XTHD12.5	XTHD16
Execution	3 points / ST	3 points / ST	3 points / ST	3 points / TC	3 points / TC

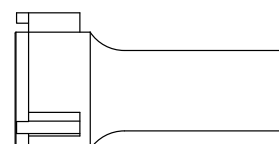
	953.2506	953.2507	953.2508	953.2509	953.2510
Meas. range mm	20-25	25-35	35-50	50-65	65-80
Type	XTHD20	XTHD25	XTHD35	XTHD50	XTHD65
Execution	3 points / TC	3 points / TC	3 points / TC	3 points / TC	3 points / TC

	953.2511	953.2512	953.2513	953.2514	953.2515
Meas. range mm	80-100	100-125	125-150	150-175	175-200
Type	XTHD80	XTHD100	XTHD125	XTHD150	XTHD175
Execution	3 points / TC	3 points / TC	3 points / TC	3 points / TC	3 points / TC

	953.2516	953.2517	953.2518	953.2519
Meas. range mm	200-225	225-250	250-275	275-300
Type	XTHD200	XTHD225	XTHD250	XTHD275
Execution	3 points / TC	3 points / TC	3 points / TC	3 points / TC

ST = steel
TC = tungsten carbide

All heads are compatible with the XT3D and XT3H systems.



3 points head



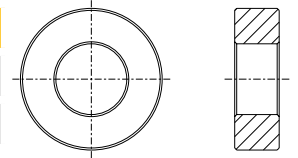
Bore gauges

Xtreme 3

TECHNICAL SPECIFICATIONS SETTING RINGS XTR

SMART

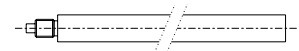
		953-2598	953-2599	953-2600	953-2601	953-2602	953-2603
Size	mm	2.5	4	5	8	12.5	20
Type		XTR2.5	XTR4	XTR5	XTR8	XTR12.5	XTR20



		953-2604	953-2605	953-2606	953-2607	953-2608	953-2609	953-2610
Size	mm	35	65	80	125	175	225	275
Type		XTR35	XTR65	XTR80	XTR125	XTR175	XTR225	XTR275

TECHNICAL SPECIFICATIONS EXTENSIONS SX

		953-2001	953-2002	953-2003	953-2004	953-2005
Meas. range	mm	6-10	10-12.5	12.5-20	20-50	50-300
Type		SX200	SX400	SX500	SX1	SX4
Length	mm	63	76	100	150	150



Other accessories

		953.2010	953.2011
Description		Stand	Depth stop
Meas. range	mm	2-50	2-6

APPLICATIONS



Pistol measuring system



Measuring with ratchet XTD system



Measuring with pistol XTH system

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Bore gauges

Xtreme SETS

DESCRIPTION

SMART

- Sets available in XTD and XTH versions
- The XTH sets are delivered with the pistol type unit, the heads necessary to cover the measuring range of the set as well as the calibration rings and certificates.
- The XTD sets are delivered as desired:
 - Together with the drum unit, the heads required to cover the range of the set, as well as the rings and calibration certificates
 - With a complete instrument (unit and head) for each measuring range, as well as calibration rings and certificates
- Measuring range Ø 2 to 200 mm (up to Ø 300 mm on request)
- Each set is delivered in a wooden box containing all items



951-6105

Output cable Proximity to USB (926-6721) or RS232 (926-6723) and Bluetooth® Wireless technology

Electronic unit



955-6105

Ring

Head



951-7105



*** Up to 8 instruments connected per dongle #981-7100**
 More informations on How to use Bluetooth® leaflet SYL_1401_EN_BT

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Bore gauges


Xtreme SETS


TECHNICAL SPECIFICATIONS INSTRUMENTS SETS


SMART

Sets XT3D 	951-6102	951-6103	951-6104	951-6105
Meas. range mm	2-6	6-10	10-20	20-50
Type	SXT3D 1M BT	SXT3D 3M BT	SXT3D 4M BT	SXT3D 5M BT
Number of heads	5	2	3	3
Numb. of rings	3	1	2	2
Meas. Force	8N	7N	15N	21N

Sets XT3D 	951-6106	951-6107	951-6108	951-6109
Meas. range mm	50-100	100-150	150-200	100-200
Type	SXT3D 6M BT	SXT3D 7M BT	SXT3D 8M BT	SXT3D 9M BT
Number of heads	3	2	2	4
Numb. of rings	2	1	1	2
Meas. Force	28N	32N	32N	32N

Sets XT3D 	951-7103	951-7104	951-7105	951-7106
Meas. range mm	6-10	10-20	20-50	50-100
Type	SXTD3U-BT	SXTD4U-BT	SXTD5U-BT	SXTD6U-BT
Number of instruments	2	3	3	3
Number of heads	2	3	3	3
Numb. of rings	1	2	2	2

Sets XT3H 	955-6102	955-6103	955-6104	955-6105	955-6106
Meas. range mm	2-6	6-10	10-20	20-50	50-100
Type	SXT3H 1M BT	SXT3H 3M BT	SXT3H 4M BT	SXT3H 5M BT	SXT3H 6M BT
Number of heads	5	2	3	3	3
Numb. of rings	3	1	2	2	2
Meas. Force	4N	9N	9N	19N	19N

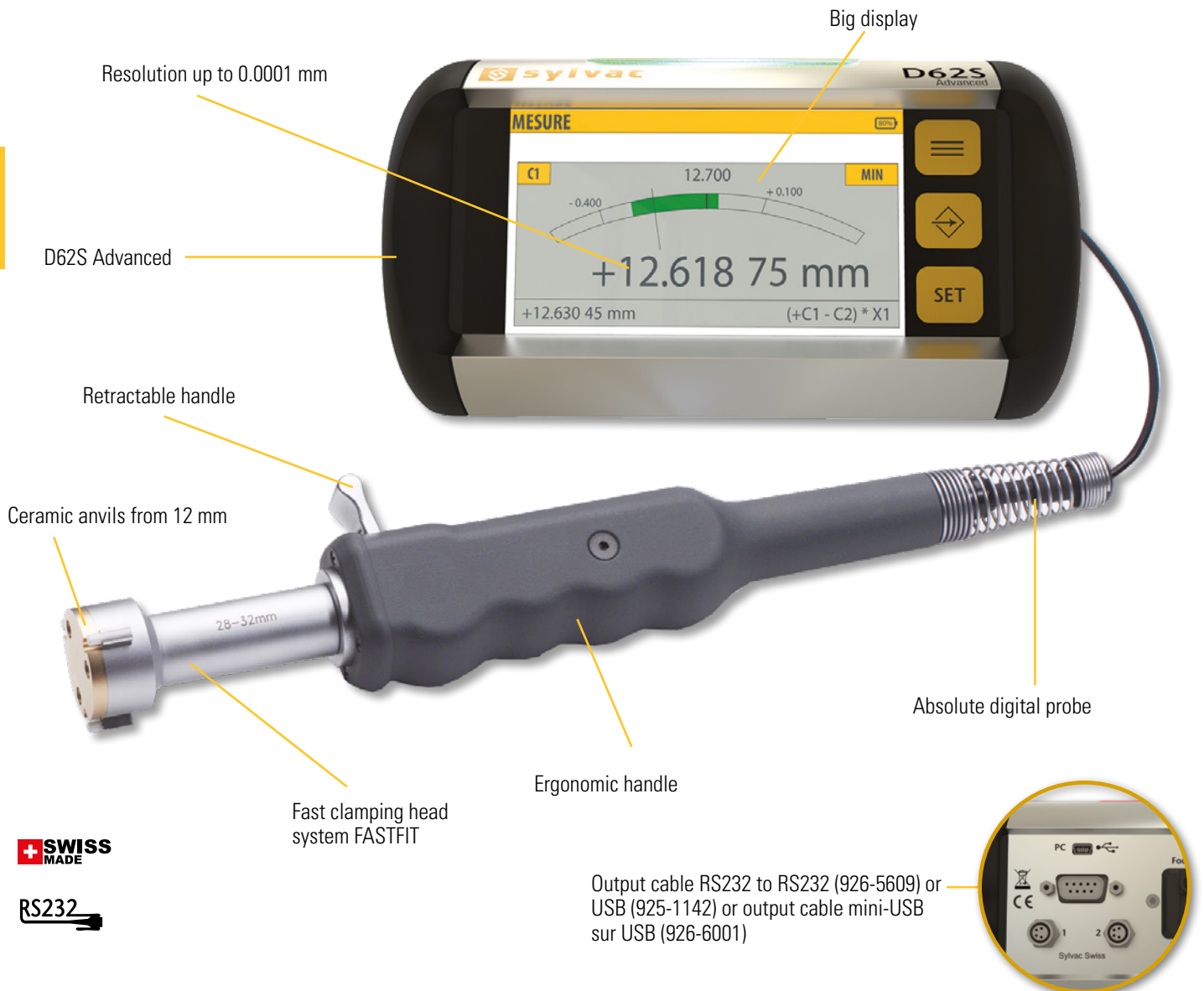
Sets XT3H 	955-6107	955-6108	955-6114	955-6115	955-6116
Meas. range mm	100-150	150-200	6-20	20-100	100-200
Type	SXT3H 7M BT	SXT3H 8M BT	SXTH10 BM BT	SXTH11 BM BT	SXT3H 9M BT
Number of heads	2	2	5	6	4
Numb. of rings	1	1	3	4	2
Meas. Force	22N	22N	9N	19N	22N

High accuracy internal measurement

Ultima

DESCRIPTION

- High-precision internal measuring set consisting of an ergonomic handle with release lever, a absolute digital probe mounted in the handle, measuring head, external display unit for reading the value, calibration ring and certificates
- Interchangeable measuring heads (quick system) 2 points (Ø 2 to 6 mm) and 3 points (from Ø 6 mm). XT measuring heads are not compatible with the Ultima system.
- Tungsten carbide measuring heads up to Ø 10-12 mm and ceramic measuring heads from Ø 12-14 mm.
- Possibility to measure blind holes from Ø 12 mm upwards
- Display resolution 0.001 or 0.0001 mm (1 µm or 0.1 µm)
- Measuring range Ø 2 to 310 mm
- Available with special measuring heads for threads, grooves, flutes, etc. on request
- Available as an individual instrument or as a set
- Delivered in a wooden box containing all items



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High accuracy internal measurement

Ultima

TECHNICAL SPECIFICATIONS OF MEASURING HEADS

		960-1206	960-1207	960-1208	960-1209	960-1210	960-1211	960-1212	960-1213
Meas. range	mm	2.0-2.5	2.5-3	3-4	4-5	5-6	6-8	8-10	10-12
Ring Ø	mm	2.5	2.5	4	5	5	8	8	12
Depth	mm	9	9	12	18	18	60	60	61
Max. Error	µm	1	1	1	1	1	1	1	1

		960-1214	960-1215	960-1216	960-1217	960-1218	960-1219	960-1220	960-1221
Meas. range	mm	12-14	14-17	17-20	20-24	24-28	28-32	32-38	38-44
Ring Ø	mm	12	17	17	24	24	32	32	44
Depth	mm	61	61	61	69	69	69	72	72
Max. Error	µm	1	1	1	1	1	1	1	1

		960-1222	960-1223	960-1224	960-1225	960-1226	960-1227	960-1228	960-1229
Meas. range	mm	44-50	50-60	60-70	70-80	80-90	90-100	100-110	110-120
Ring Ø	mm	44	60	60	80	80	100	100	120
Depth	mm	72	80	80	80	80	80	80	80
Max. Error	µm	1	1	1.5	1.5	1.5	1.5	1.5	1.5

		960-1230	960-1231	960-1232	960-1233	960-1234	960-1235	960-1236	960-1237
Meas. range	mm	120-130	130-140	140-150	150-160	160-170	170-180	180-190	190-200
Ring Ø	mm	120	140	140	160	160	180	180	200
Depth	mm	80	80	80	80	80	80	80	80
Max. Error	µm	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5

		960-1238	960-1239	960-1240	960-1241	960-1242	960-1243	960-1244	960-1245
Meas. range	mm	200-210	210-220	220-230	230-240	240-250	250-260	260-270	270-280
Ring Ø	mm	200	220	220	240	240	260	260	280
Depth	mm	80	80	80	80	80	80	80	80
Max. Error	µm	1.5	2	2	2	2	2	2	2

		960-1246	960-1247	960-1248
Meas. range	mm	280-290	290-300	300-310
Ring Ø	mm	280	300	300
Depth	mm	80	80	80
Max. Error	µm	2	2	2

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High accuracy internal measurement

Ultima

TECHNICAL SPECIFICATIONS SETS

	961-1302	961-1303	961-1304
Meas. range mm	2-6	6-10	10-20
Number of rings	3	1	2

	961-1307	961-1308	961-1309	961-1310
Meas. range mm	6-20	20-50	50-100	20-100
Number of rings	3	3	3	6

STANDARD DELIVERY

Individual

- Instrument according to technical specifications (handle with integrated probe + head)
- Setting rings according to technical specifications
- Wooden box ¹⁾
- Certificate

Sets

- Instrument according to technical specifications (handle with integrated probe + head)
- Setting rings according to technical specifications
- Digital display D62S Advanced (804-1063)
- Probe P12D Standard (801-2212)
- Wooden box ¹⁾
- Instruction manual + certificate

¹⁾ Fumigated compatible ISPM 15 and NIMP 15

TECHNICAL SPECIFICATIONS HANDLES

	961-3001	961-3002	961-3003	961-3004
Meas. range mm	2-6	6-20	20-100	100-310

Probe included

TECHNICAL SPECIFICATIONS EXTENSIONS

	961.2001	961.2002	961.2003	961.2004	961.2005	961.2006	961.2007
Meas. range mm	6-10	10-12	12-20	20-50	50-310	20-50	50-310
Length mm	63	75	100	50	50	150	150



High accuracy internal measurement

Ultima

APPLICATIONS



Data output through USB



Two Ultima gauges connected with one unit
Sylvac D62S only



Adjustable depth stop (on request)



Set including 6 measuring heads, 3 master rings, 1 D62S, the handle and his probe, charging unit

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Bore gauges

Special applications

DESCRIPTION

- XTD or XTH instrument equipped with a special measuring head manufactured according to the particular item to be measured
- These instruments are subject to a feasibility analysis and a preliminary price offer based on the design of the component to be measured.
- We can measure the following elements :
 - Grooves, notches
 - Threads from M4 (all types)
 - Splines
 - Deep holes
 - etc.
- Delivery time 4-8 weeks

Grooves and slots head



Threads measuring head



Spherical anvils head



Ball screw head



Built-in
Bluetooth

PROXIMITY

SIS Smart Inductive System

WATER RESISTANT

IP67