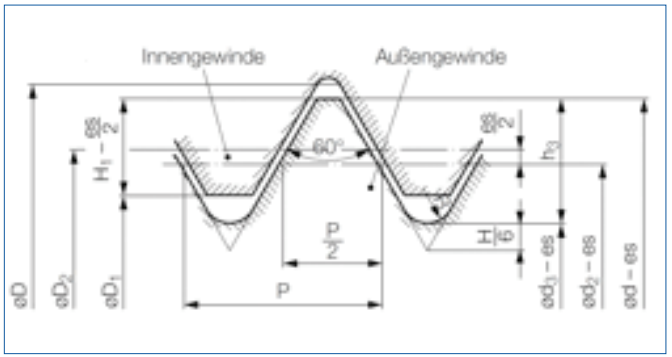
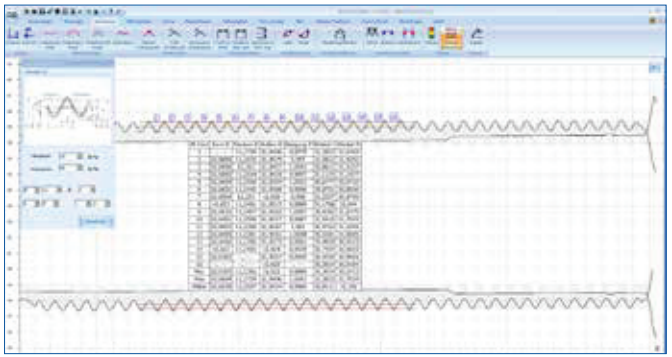
Thread Evaluation by optacom

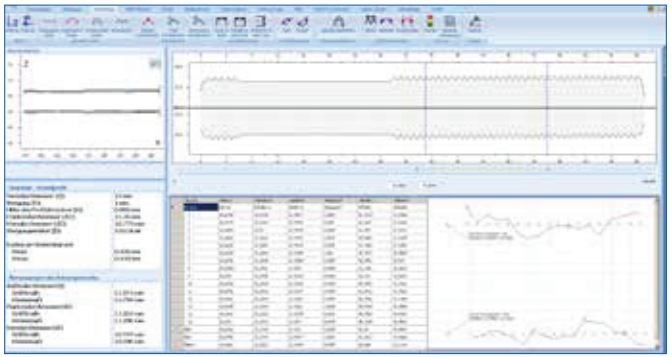
A further analysis option has been added to our well known optacom suite 2, so that additional tasks in production and test laboratories can be performed.

Even complex geometries on workpieces and thread gauges can quickly be assessed at maximum precision, and features for data logging and export are provided.

The user may select between three software configurations, according to their particular needs with respect to measurements: Light, Standard and Professional.







optacom Thread Software Light

All basic tasks in thread measurement are already offered by the Light Version. Even users without particular knowledge may execute thread measurements on workpieces with respect to flank, outer and core diameter, as well as of flank angle and slope.

A meaningful choice of functions is included to simplify work, like automatic range insulation, this way considerably contributing to establish fast and repeatable measuring sequences. Tolerances may be assigned to averages, minimum and maximum limits. Even the smallest edition is able to simultaneously evaluate inner and outer threads.

optacom Thread Software Standard

The standard version has been developed for users examining a large variance of thread types. Additionally to basic thread parameters, further variables are supported, like flank diameter, single flank diameter, paired flank diameter, accumulated slope deviation, partition, conicity, profile shape deviation, straightness etc., easily to be selected from different thread or factory standards.

The analysis features of the Light version are completed by an optimized window for thread display with enhanced logging possibilities.

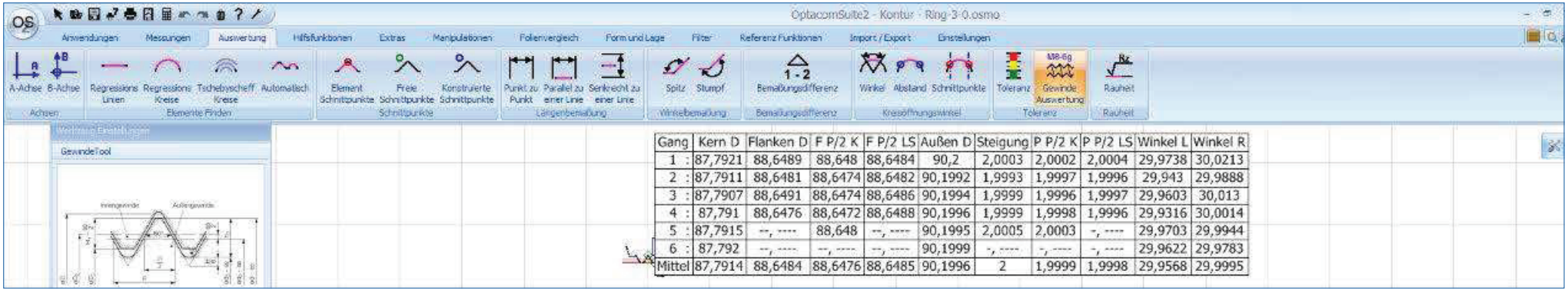
Each pass may distinctly be evaluated and presented. All common international standards are supported. Numerous evaluation methods, including the usual three-ball method, are provided. Further benefits of this software edition are easy handling and a high degree of automation.

optacom Thread Software Professional

Not only threads of workpieces, but also of thread gauges may be assessed at outmost accuracy by means of this software package. For this reason, hardware items developed in-house and intended for safe stretching of ring and plug gauges, are supported.

A software extension for a large quantity of international standards, valid for threaded gauges, is comprised as well, so that users are enabled to perform quick comparison of nominal values and real results.

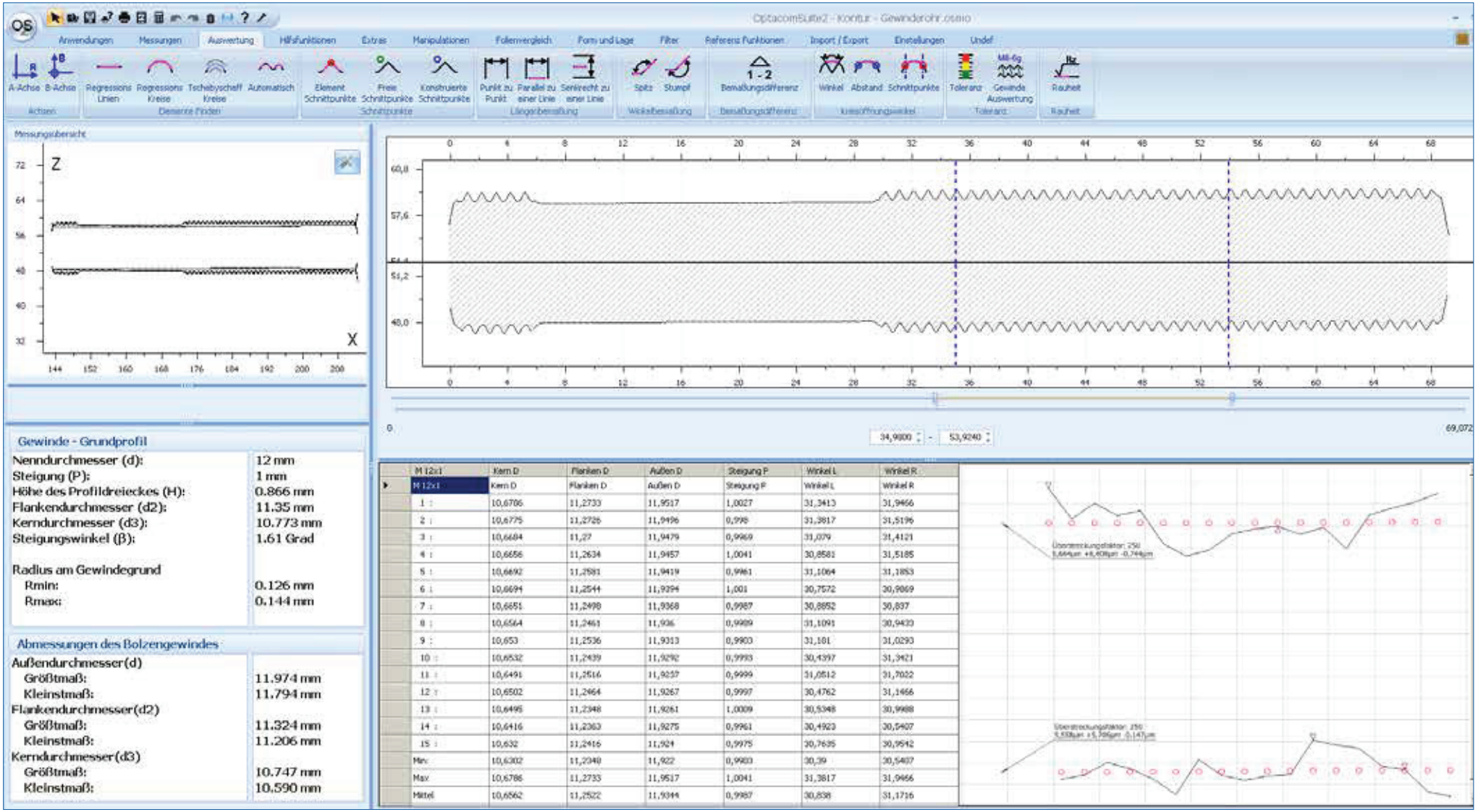
Detected parameters as well as customized data logging can automatically be exported any time.



optacom Thread Software: Functions offered by the distinct versions

Function	Light	Standard	Professional
Assessment of basic thread parameters for workpieces	✔	✔	✔
Assessment of all thread parameters for workpieces		✔	✔
Assessment of all thread parameters for gauges			✔
Evaluation by means of three ball method with nominal diameter of measuring wire	✔		
Free selection of measuring method		✔	✔
Free assignment of tolerances, independent of standards	✔	✔	✔
Comparison of nominal thread parameters and real results acc. to international standards		✔	✔
Comparison of nominal thread parameters and real results acc. to international standards (for gauges)			✔
Support for automatic mode (reference run)	✔	✔	✔
Support for supplementary thread module of optacom			✔
Automatic range insulation	✔	✔	✔
Test possible also for users without particular knowledge	✔	✔	✔
Extended display of thread profile		✔	✔
Logging in total view	✔	✔	✔
Extended logging (all passes, resp. adaptable)		✔	✔
Surface optimized for gauge measurement			✔
Quick Start Bar for automatic sequences and evaluations on the basis of measurement programs			✔

Type of Thread (Distinguishing Sign)	Thread acc. to standards	Gauges acc. to standards
Metric thread (M, MF, MJ, UNM, M STI, MJ STI)	ISO 68-1 / ISO 965-1 bis 5 / ISO 1501 / ISO 5855-1 DIN 13-1 to 52 / DIN 14 / DIN 2510-2 / DIN 8140 ASME 1.13M / ANSI B1.10M / BS 4377 / SAE MA1567	ISO 1502 ANSI B1.16M
Cylindrical ISO Pipe Thread	ISO 228-1	ISO 228-2
Conical ISO Pipe Thread (R-Rp-Rc, Rp STI, Rc STI)	ISO 7-1 EN 10226-1, -2	ISO 7-2 / DIN 2999 B.S. 21 (A, B)
Round Thread (Rd)	DIN 405-1, -2 / DIN 20400 /	DIN 405-3
Unity Inch Thread (UNC, UNF, UNEF, UN, UNS, UNRC, UNRF, UNREF, UNR, UNRS, UNJC, UNJF, UNJEF, UNJ, UNJS)	ANSI B1.1 / ANSI B1.15	ANSI B1.2 BS 919-1
Whitword Thread (BSW, BSF, Whit.S., Whit., BSW STI, BSF STI, BSP STI)	B.S. 84	BS 919-2
Metric Trapezoid Thread (Tr, ACME, STUB ACME)	ISO 2901 / DIN 103-1 to 8 / DIN 380 ANSI B1.5 / ANSI B1.8	DIN 103-9 ANSI B1.5 / ANSI B1.8
Metric Serrate Thread 33°/ 45° (S), 52° (BUTT)	DIN 513-1 to 3 / DIN 20401 / DIN 2781 ANSI B1.9 / B.S. 1657	ISO 1502 / DIN 103-9 ANSI B1.9
Gas Bottles Conical ISO Thread	ISO 11363-1	ISO 11363-2
ANSI Universal Pipe Thread (NPT, NPSC, NPTR, NPSM, NPSL, NPT STI, NPSC STI, ANPT STI))	ANSI B1.20.1 SAE AS71051	ANSI B1.20.1 SAE AS71051
ANSI Dry-Sealing Pipe Thread (NPTF, PTF-SAE Short, NPSF, NPSI, F-PTF)	ANSI B1.20.3	ANSI B1.20.5
API Thread for Oil Industry (LP, CSG, LCSG, TBG, UPTBG, UPLTBG, IJTBG, BCSG, XCSG, LTC)	API Spec. 5B	API Spec. 5B / API Spec. 5B1
ANSI Hose Coupling Thread (NPSH, NH, NHR)	ANSI B1.20.7	ANSI B1.20.7
NFPA Hose Coupling Thread for Fire Brigades (NH)	NFPA 1963	NFPA 1963
NC Interference Fit Thread Class 5 (NC) (HF/IF; CSF/IF; ONF/INF)	ANSI B1.12	ANSI B1.12
EC Inch Thread (UN STI, UNJ STI, 8 UN STI, 16UN STI)	ASME B18.29.1 / ANSI B1.1 NASM 33537 / BS 3409	ANSI B1.2 BS 919-1
B.A. Thread (BA)	B.S. 93	BS 919-2


Anwendungen
Messungen
Auswertung
Hilfsfunktionen
Extras
Manipulationen
Folienvergleich
Form und Lage
Filter
Referenz Funktionen
Import / Export
Einstellungen
Undef
A-Achse
B-Achse
Regressions Linien
Regressions Kreise
Tschebyschaff Kreise
Automatisch
Element Schnittpunkte
Freie Schnittpunkte
Konstruierte Schnittpunkte
Punkt zu Punkt
Parallel zu einer Linie
Senkrecht zu einer Linie
Spitz
Stumpf
Bemaßungsdifferenz
Winkel
Abstand
Schnittpunkte
Toleranz
Gewinde Auswertung
Rauheit
Messungsübersicht
Z
X
Gewinde - Grundprofil
Nenndurchmesser (d): 12 mm
Steigung (P): 1 mm
Höhe des Profildreieckes (H): 0.866 mm
Flankendurchmesser (d2): 11.35 mm
Kerndurchmesser (d3): 10.773 mm
Steigungswinkel (β): 1.61 Grad
Radius am Gewindegrund
Rmin: 0.126 mm
Rmax: 0.144 mm
Abmessungen des Bolzengewindes
Außendurchmesser(d)
Größtmaß: 11.974 mm
Kleinstmaß: 11.794 mm
Flankendurchmesser(d2)
Größtmaß: 11.324 mm
Kleinstmaß: 11.206 mm
Kerndurchmesser(d3)
Größtmaß: 10.747 mm
Kleinstmaß: 10.590 mm

Abbreviation	Country	Flank Angle	German	English
ISO		60°	Internationale Vereinigung der Standardisierungsgremien	International Organization for Standardization
UN	USA	60°	Amerikanisches Einheitsgewinde mit konstanter Steigung	Unified National 8-, 12- and 16 pitch series
UNC	USA	60°	Amerikanisches Einheitsgewinde, grob	Unified National Coarse
UNEF	USA	60°	Amerikanisches Einheitsgewinde, extra fein	Unified National Extra Fine
UNF	USA	60°	Amerikanisches Einheitsgewinde, fein	Unified National Fine
UNJ	USA	60°	Amerikanisches Einheitsgewinde mit Maßangaben für den Grundradius des Außendurchmessers, vergrößerter Kern-durchmesser des Innengewindes	Unified National thread series with external thread controlled root radius
UNJC	USA	60°	Amerikanisches Einheitsgewinde, grob, mit Maßangaben für den Grundradius des Außendurchmessers, vergrößerter Kerndurchmesser des Innengewindes	Unified National Coarse thread series with external thread controlled root radius
UNJEF	USA	60°	Amerikanisches Einheitsgewinde, extrafein, mit Maßangaben für den Grundradius des Außendurchmessers, vergrößerter Kerndurchmesser des Innengewindes	Unified National Extra Fine thread series with external thread controlled root radius
UNJF	USA	60°	Amerikanisches Einheitsgewinde, fein, mit Maßangaben für den Grundradius des Außendurchmessers, vergrößerter Kerndurchmesser des Innengewindes	Unified National Fine thread series with external thread cont-rolled root radius
UNJS	USA	60°	Amerikanisches Einheitsgewinde, mit speziellen Durchmes-sern, Steigungen und Einschraublängen, mit Maßangaben für den Grundradius des Außendurchmessers, vergrößerter Kerndurchmesser des Innengewindes	Unified National Special thread series with external thread controlled root radius
UNR	USA	60°	Amerikanisches Einheitsgewinde mit konstanter Steigung und Maßangaben für den Grundradius	Unified National thread series with external thread controlled root radius
UNRC	USA	60°	Amerikanisches Einheitsgewinde, grob und Maßangaben für den Grundradius	Unified National Coarse thread series with external thread controlled root radius
UNREF	USA	60°	Amerikanisches Einheitsgewinde, extrafein und Maßangaben für den Grundradius	Unified National Extra Fine thread series with external thread controlled root radius
UNRF	USA	60°	Amerikanisches Einheitsgewinde, fein und Maßangaben für den Grundradius	Unified National Fine thread series with external thread cont-rolled root radius
UNRS	USA	60°	Amerikanisches Einheitsgewinde mit speziellen Durchmes-sern, Steigungen und Einschraublängen und Maßangaben für den Grundradius	Unified National Special thread series with external thread controlled root radius

Abbreviation	Country	Flank Angle	German	English
UNS	USA	60°	Amerikanisches Einheitsgewinde mit speziellen Durchmessern, Steigungen und Einschraublängen	Unified National Special
NPT	USA	60°	Amerikanisches, kegeliges Standard Rohrgewinde, 1:16	National Pipe Taper 1:16
NPTF	USA	60°	Amerikanisches, kegeliges Standard Rohrgewinde, trocken dichtend, 1:16	National Pipe Taper Fuel and Oil Dryseal 1:16
NPTR	USA	60°	Amerikanisches, kegeliges Standard Rohrgewinde, Schienenfahrzeuge	National Pipe Taper Railing Fittings
NPSC	USA	60°	Amerikanisches, kegeliges Standard Rohrgewinde, Kupplungen	National Pipe StraightCoupling
NPSF	USA	60°	Amerikanisches, zylindrisches Standard Rohrgewinde, innen, trocken dichtend	National Pipe Straight Fuel
NPSG	USA	60°	Amerikanisches, zylindrisches Standard Rohrgewinde für Schmiernippel	National Pipe StraightGrease
NPSH	USA	60°	Amerikanisches, zylindrisches Standard Rohrgewinde, Schlauchverbindungen	National Pipe Straight Hose
NPSI	USA	60°	Amerikanisches, zylindrisches Standard Rohrgewinde für Rohrzwischenstücke	National Pipe StraightIntermediate
NPSL	USA	60°	Amerikanisches, zylindrisches Standard Rohrgewinde, für mechanische Verbindungen mit Abdichtmutte	National Pipe StraightLoose
NPSM	USA	60°	Amerikanisches, zylindrisches Standard Rohrgewinde, für mechanische Verbindungen	National Pipe StraightMechanical
BSW	GB	55°	British Standard Whitworth Grobgewinde	British Standard Withworth Coarse
BSF	GB	55°	British Standard Feingewinde	British Standard Fine
BSPP	GB	55°	Zylindrisches British Standard Gasgewinde	British Strandard PipeParallel
BSPT	GB	55°	Kegeliges British Standard Gasgewinde	British Standard Pipe Taper
BA	GB	47°	British Association Standard Gewinde	British StandardAssociation
NC	USA	60°	National Grobgewinde, 1948 ersetzt durch UNC	National Coarse
NF	USA	60°	National Feingewinde, 1948 ersetzt durch UNF	National Fine