Description of options in the KSM Quote.

Optional KSM hardware. 2
2 Additional camera with fixed accurate optic 2
3 HR Camera option....2
4.1 KSM over light, adjustable 2
4.2 ON-OFF Automatic for over light 2
5 VER, Verification program....2
6 Certification protocols for the KSM Calibration set....2
7.1 Program and hardware for connection with a AESA Resistance measuring unit....2
7.2 Program for connection with a AESA 8xxx Resistance unit....2
8.1 XLPE Glass with weight to flatten sample 2
9.1 Spare part set with all lamps (4 + 2) and possible also the bottom glass....2
9.2 Backup Rescue usb for KSM and Imaging Card drivers 2
11 DB, Database for measured values including summary reports 4
Excel export in Summary reports....4
The biggest cost in cable production, MATERIAL. 5
12 KSMLDB Specification database 5
Measurement protocol in KSMLDB mode also containing specification values 6
13.1 KSMTrend walls with OD cost calculation plastic....7
13.2 Other KSMTrend curves such as Resistance, Diameters etc. Per additional curve....8
14 KSMRemote....9
15 Average measuring mode....9
KSM Software options to measure different cable types....10
21 Ready to use Image gauging application program. 10
23 Print Image including save measured image function 11
24 Label Printer, additional to the normal included printer function....11
25 Bare code Printer function 11

ACM AB
Drakvägen 8, SE-175 65 JÄRFÄLLA, Sweden.
Phone +46 - 8 89 27 15, e-mail ksm@acmab.com www.acmab.com

Optional KSM hardware.

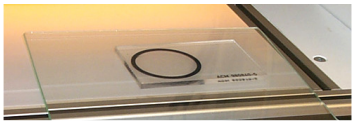
2 Additional camera with fixed accurate optic
To cover a bigger measuring range additional camera with fix optic can be added.

3 HR Camera option
An HR (high resolution) camera has approx. two times as many pixels as normal cameras thus giving higher accuracy. HR cameras can also locate smaller walls like in HV and EHV Cable's conductor and insulation screens. Refer to data in the quote.

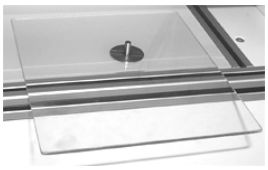
4.1 KSM over light, adjustable
Needed for some measuring programs such as COL
and non translucent multi layer programs R2 and R3R.

4.2 ON-OFF Automatic for over light
New usb connected hardware combined with commands built into the KSM measuring programs set the Over Light ON and OFF automatically and only when needed. Strongly recommended.

5 VER, Verification program
including verification plates. The verification plates have unique numbers and are measured in KSM directly after calibration.
Used for daily or weekly control.



6 Certification protocols for the KSM Calibration set
The delivered set of calibrator can also be measured by an institute for traceable measuring data. A protocol in English will be made for each calibrator unit.
For customer with existing KSM units the already delivered calibration units will be used to minimize the cost to measure them after validities expires.



7.1 Program and hardware for connection with a AESA Resistance measuring unit
The KSM measuring program automatically imports and checks the values from an AESA Resistance measuring bridge. The resistance value is checked for stability avoiding import of not yet temperature stable value. Operational with AESA-unit 7122-27 (version 3.10 – 3.11) and the new models 7195, 7197, 7197ET and 7198. Now also ResTest

7.2 Program for connection with a AESA 8xxx Resistance unit
KSM have a link to read data from file stored by the AESA Soft.

8.1 XLPE Glass with weight to flatten sample
HV/EHV XLPE cables often bend after making a slice. This glass flattens the XLPE sample.

9.1 Spare part set with all lamps (4 + 2) and possible also the bottom glass

9.2 Backup Rescue usb for KSM and Imaging Card drivers
Alternatively you can directly by the delivery of KSM store all programs on your server as backup.

ACM AB
Drakvägen 8, SE-175 65 JÄRFÄLLA, Sweden.
Phone +46 - 8 89 27 15, e-mail ksm@acmab.com www.acmab.com

ACM can also by training help to make automatic backups to your server.

Below options to store and handle data making it possible to **reduce the biggest cost in cable production, MATERIAL**.

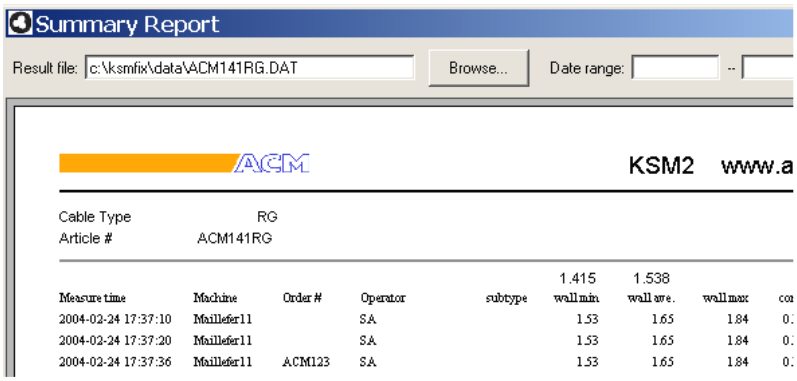
5 % extra material not paid for!!!

ACM AB
Drakvägen 8, SE-175 65 JÄRFÄLLA, Sweden.
Phone +46 - 8 89 27 15, e-mail ksm@acmab.com www.acmab.com

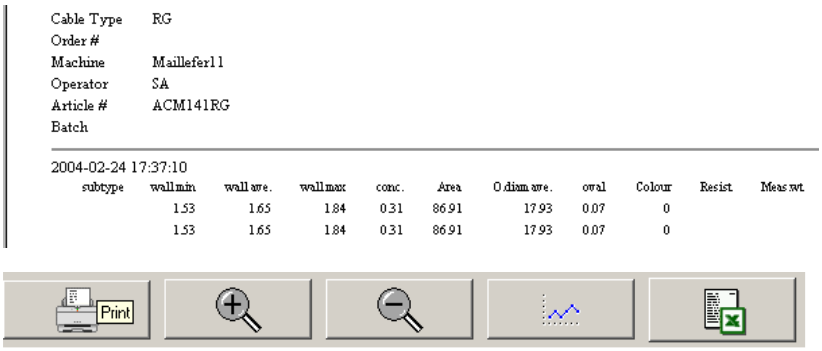
11 DB, Database for measured values including summary reports

This program automatically summarise all KSM data in standard ASCII-files per article number (a unique product code). If needed also per order number or any other info-field name.

Built in date range filter as well as browser function for old data.

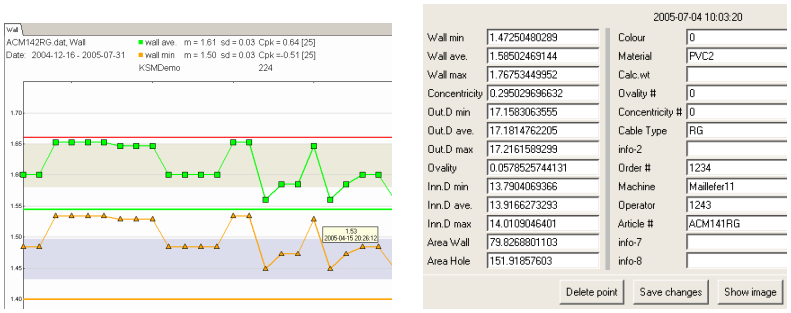


Two types of summary protocols are available as standard. One as above with Measuring time in the first column and one with the subtype.
Printer function and export to xls.



Trend curves can be displayed if program KSMTrend is used.

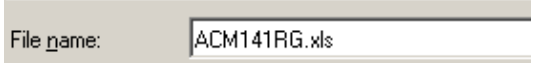
Via the trend curve individual data can be displayed and if so set be deleted.
The measured image including measuring lines from the measuring point can be displayed to control the sample quality or finding that wrong product was measured.



The complete measuring point can if set in setup be deleted.

Excel export in Summary reports

Convert and export measuring files via the Export function integrated in DB Summary function. Files are readable in EXCEL, for example on the Server.
The file is automatically named but the name and location can be altered if the default is not suitable.
Default location is selected in KSM Setup.



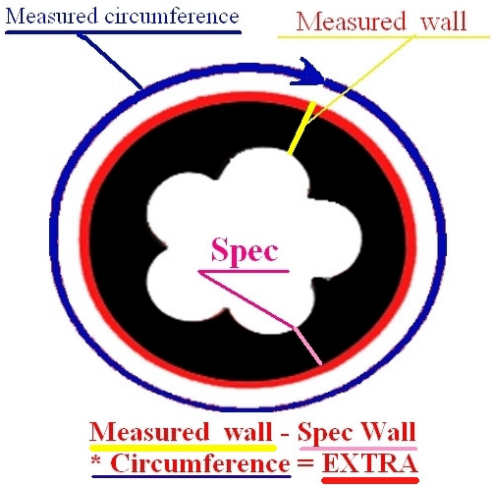
This DB option also makes it possible to use the summery function in KSMData

ACM AB
Drakvägen 8, SE-175 65 JÄRFÄLLA, Sweden.
Phone +46 - 8 89 27 15, e-mail ksm@acmab.com www.acmab.com

The biggest cost in cable production, MATERIAL.

The EXTRA coast in the cable is related to OD Area. Is automatically calculated in KSM based up difference between measured and specified wall.

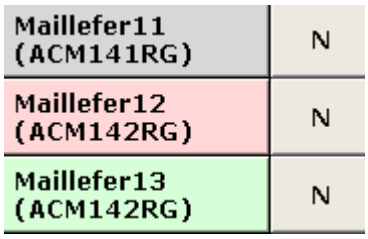
OD area (mm^2) and % presents

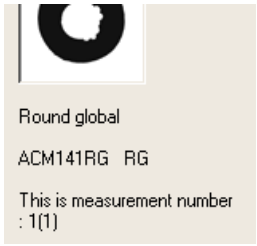


12 KSMLDB Specification database

This additional specification database is integrated with the KSM measuring program storing reference (specifications) and measuring data.
Additional fields for other data and calculations are available.
Those data are often located at the Server assessable accessible for other users for example with the **KSMData** and **KSMAnalyze** office programs. Using KSMRemote the specifications can be sent directly from the customer program such as Cable builder or SAP.

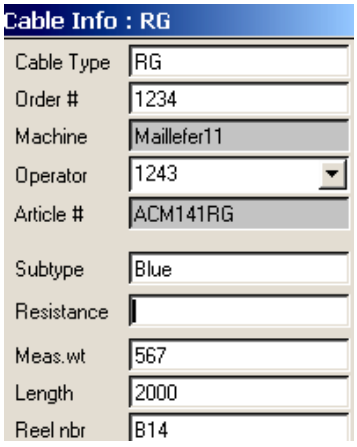
A temporary memory what cable type (article) was last measured per manufacturing line: The operator only select his production line and change specification only when a new type of product shall be produced.
For up to 16 lines using customer names.
Measuring program is selected automatically when the "line" button function is used.
Thousands of specifications are normal





The header is filled automatically with data from the database. Input from last measurement can be memorized and data can be locked for editing.
Curser start point can be set.

Reel number can be incremental.

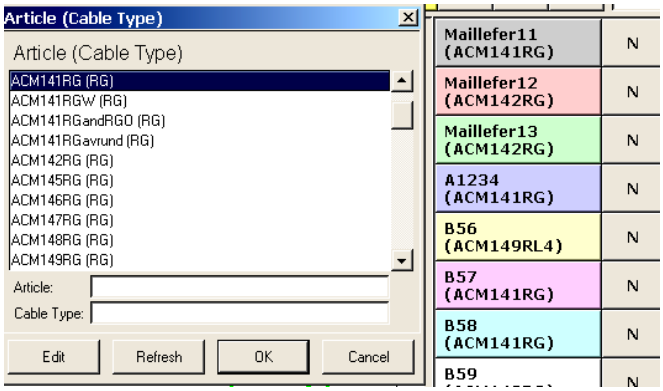


ACM AB
Drakvägen 8, SE-175 65 JÄRFÄLLA, Sweden.
Phone +46 - 8 89 27 15, e-mail ksm@acmab.com www.acmab.com

KSM Options 7 Jun -2014

When changing article (product) in the extrusion line the “N” button gives access to the article (product) database containing all customer specifications, typical 5-6 000.

Articles also can be added or edited via a pass word protected menu.



Data are stored in standard centralised ASCII files assessable via the KSM Summary protocol function as well as via the office programs **KSMData** and **KSMAnalyze.**
ASCII is used thus other programs such as Excel and Access can import/open those files.

The specification (article) files as well as the line button files are in ASCII and can be created from other programs using KSMRemote, for example your own data base program.

Measurement protocol in KSMLDB mode also containing specification values

2005-07-04 10:12:15

Cable Type	RG			Subtype	Blue
Order #	1234			Meas.wt	567
Machine	Maillefer11			Length	2000
Operator	1243			Reel nbr	B12
Article #	ACM141RG				

RG Roundcable global

			Deviation	Min	Max	Nom
Wall min	1.45	mm		1.42		
Wall ave.	1.56	mm		1.54	1.71	
Wall max	1.74	mm				
Concentricity	0.29		X		0.22	
Out.D min	16.92	mm		16.20		
Out.D ave.	16.94	mm				
Out.D max	16.97	mm			18.50	
Ovality	0.05				0.12	
Inn.D min	13.60	mm		13.50		
Inn.D ave.	13.73	mm				13.80
Inn.D max	13.82	mm			14.90	
Area Wall	77.5	mm²				74.30
Area Hole	147.8	mm²				163.00
Colour	0	%	X	30.00		
Resistance	12345		X	1.00	2.00	3.00
Calc.wt						25.00
Mass of lost Area	9787.8	mm²				
Ovality %	0.32					
Area EN mm2						

Except for standard Min/Max-values and average the system measures also the area of insulation and the centre hole. This is very usable for new cable designs.

Additional data from any measured or recorded data can be calculated such as “Mass of lost area” and/or “Area EN”.

In the KSMLDB (option DB, Database) mode the reference values are displayed and automatically compared with the measured values. If deviations, the values are marked in red as well as with a cross and the whole screen protocol turns red.

2008-08-03 01:32:49

Cable Type	RG			Batch	C34567
Order #	ACM123			Position	Start
Machine	Maillefer12			Subtype	Blue
Operator	1243			Length	5500
Article #	ACM142RG			Reel nbr	B24

RG Roundcable global

	Measured		Deviation	Min	Max	Nom
Wall min	1.48	mm		1.4		
Wall ave.	1.60	mm		1.545	1.66	
Wall max	1.78	mm			1.79	
Concentricity	0.30					
Inn.D ave.	14.11	mm				13.4
Out.D min	17.36	mm		16.2		
Out.D ave.	17.41	mm				17.15
Out.D max	17.45	mm			18.5	
Colour	0	%				
Ovality	0.10				1.4	

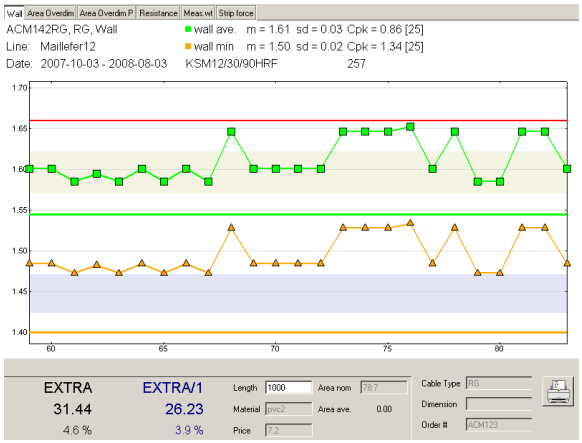
When all values compared with the specification are OK (in the KSMLDB mode) the Screen protocol turns green.

If an internal not customer related value differ the screen turns yellow.

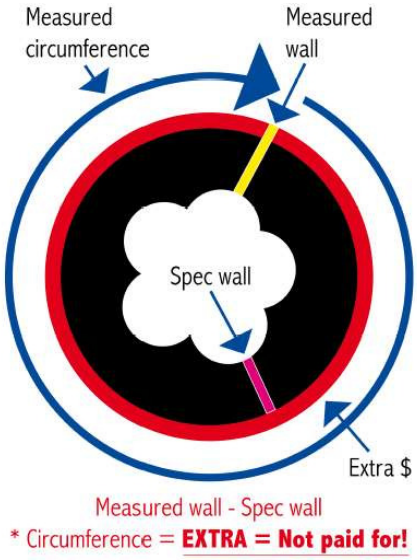
ACM AB
Drakvägen 8, SE-175 65 JÄRFÄLLA, Sweden.
Phone +46 - 8 89 27 15, e-mail ksm@acmab.com www.acmab.com

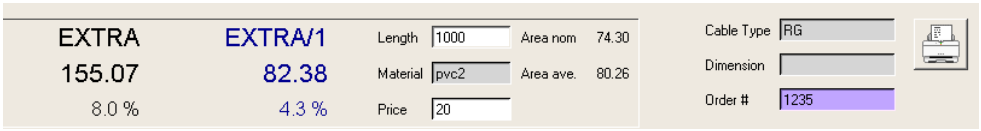
13.1 KSMTrend walls with OD cost calculation plastic

Directly within a second after stored measuring values a trend curve with measured and reference min and average walls is automatically presented for the actual line. An in relation to sd dynamical adapted target area set the goal for the operator.
When pointing a measuring point its value and time is displayed. If so set all values can also be displayed and deleted if obviously wrong.
New order number (batch) position is marked.
Scale and number of measurement to be displayed are settable.



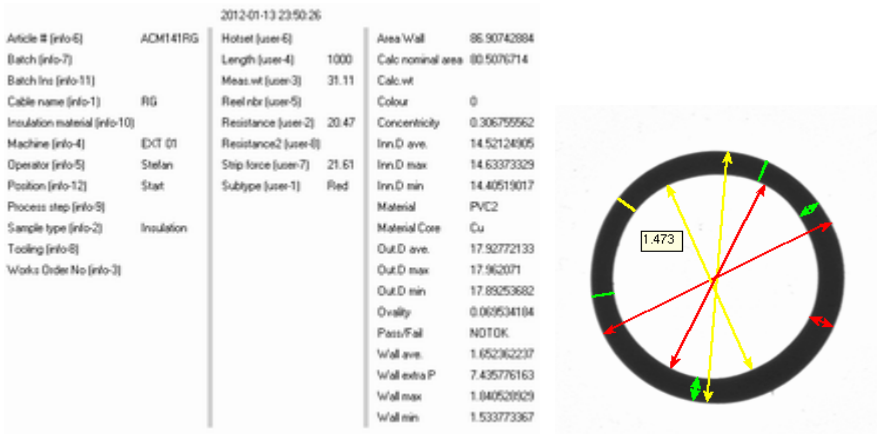
The **over dimensional cost** (EXTRA) **is automatically calculated** per product in its manufacturing line by automatic calculation of the extra material used based upon difference between measured and specified wall. Or comparing specified area (weight/density) and the in KSM true measured area. The last value and average for all the values on the screen is displayed giving direct economical feed back to the person that directly can influence the cost, the operator.
Thus giving information that the 0.1 mm extra wall is a lot of money.
The calculation is in your currency based upon your material prices. Now also possible to use specified weight instead of area.





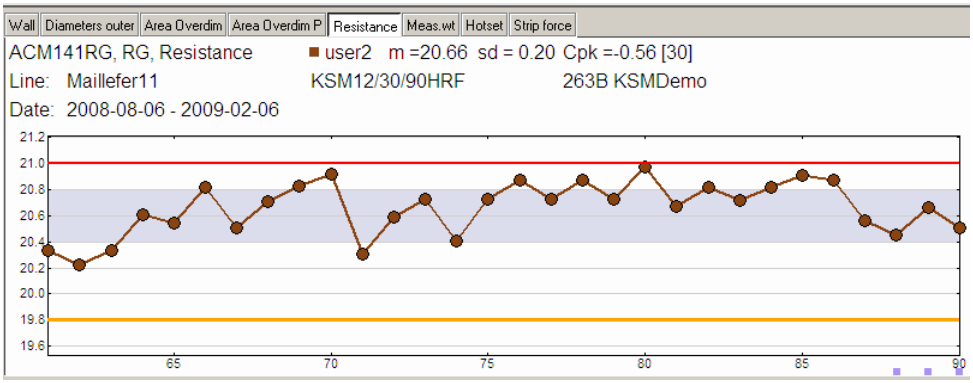
Reference values and over dimensional cost calculation only possible in combination with database KSMLDB.

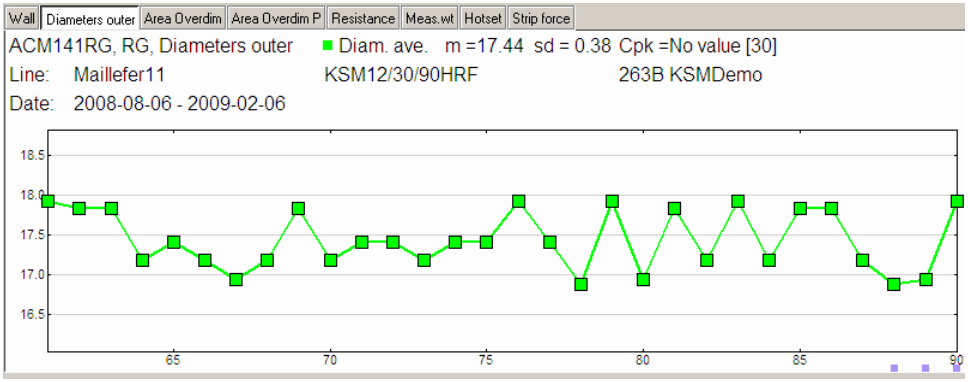
Via the trend curve individual data can be displayed and if allowed in setup be deleted.
Also the measured image itself including its measuring lines can be displayed.
This for example to check the sample quality for a questionable measuring value.

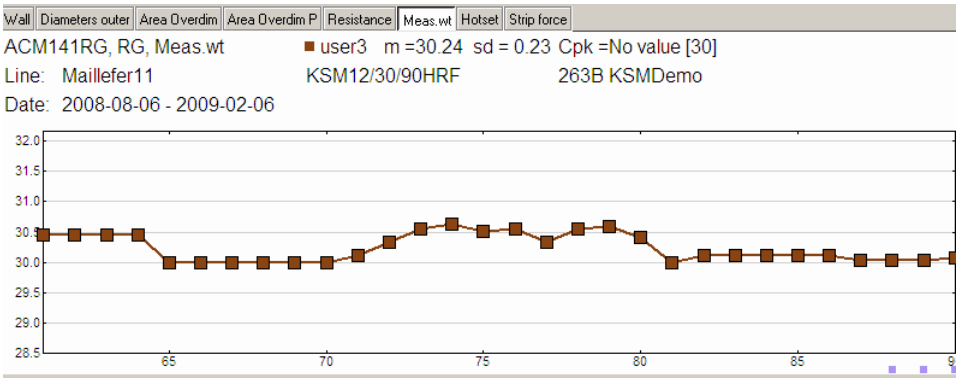


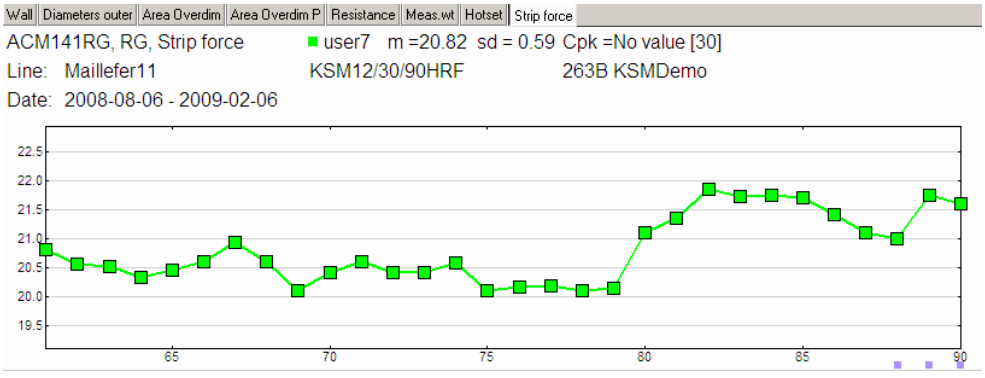
Database with summary reports is required to use this option, the price is additional also to use KSMTrend

13.2 Other KSMTrend curves such as Resistance, Diameters etc. Per additional curve







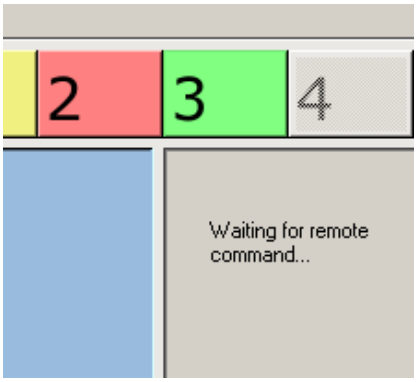


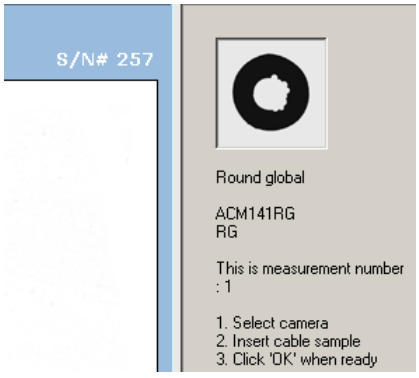
This option also makes it possible to use the trend function option in KSMData.

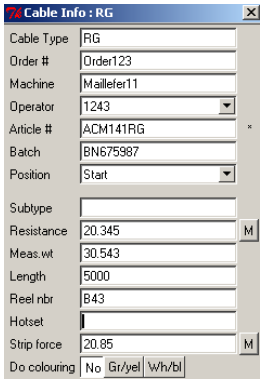
Refer to descriptions for down load at www.acmab.com/Info/ and www.acmab.com/Info/Video/

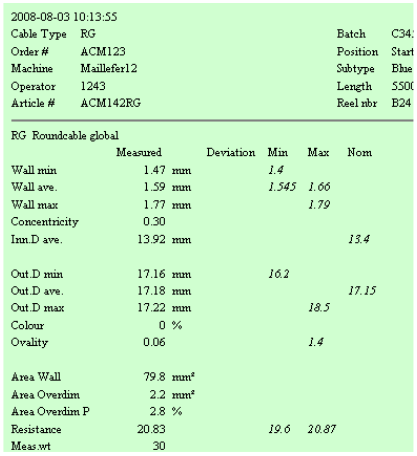
14 KSMRemote

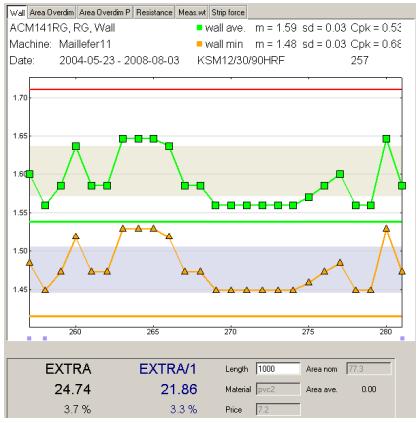
for the dynamical remote operation of KSM using an external database.
This remote program makes it possibly to run the KSM measuring program under any Database program exchanging reference and measuring data automatically. KSM MEASURING PROGRAMS is selected automatically. For the operator it's like being in its own software environment except when measuring. References and measuring data are normally stored through the network on the Server. This system, which according to our opinion is the most convenient and efficient one, can now also contain specification data and comparing is made automatically after measuring and displayed in the KSM Protocol if KSMLDB is used.
Also KSMTrend can be used giving trend curves and over dimensional cost calculations within a second after measuring. In the same manner as by using KSMLDB.

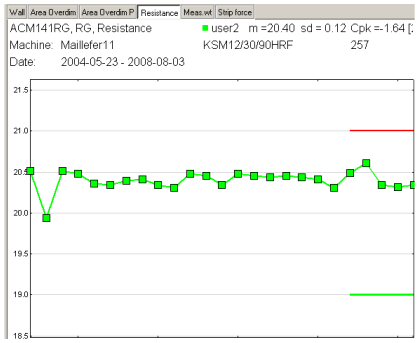












Database with summary reports and KSMLDB is required to use this option, the price is additional also to use KSMTrend

15 Average measuring mode

Automatically asking for next sample and using all walls to find min, max and calculate average. Normally selectable 2, 3 or 5 samples but any figure up to 9 can be used.
Typically used by Test Institutes.

ACM AB
Drakvägen 8, SE-175 65 JÄRFÄLLA, Sweden.
Phone +46 - 8 89 27 15, e-mail ksm@acmab.com www.acmab.com

KSM Software options to measure different cable types

21 Ready to use Image gauging application program.

AR1 Area for example to be used for “Dumb Bells” for tensile testing, 1 layer

COL  Green/Yellow and black/white %-measuring of cable circumference

F1 Flat cable IEC 60811-1-2 1 layer

FM1 Flat Band Cable without walls in between

FS1 and Flat Band Cable with walls in between

FTE Flat twin and earth BS EN 6060811-1-2: 1995

FI8 Figure8 (Tragseil Kabel)

FI82  Figure8 with 2 support parts

INR  Indent INR, heat pressure indent for a slice through the cable

INS  Indent INS, heat pressure indent for a slice from the side

LIFT  Lift Cable (with or without sbm) EN50214

MD  Manual draw, to manually measure a distance on any abject

OHM To add only resistance automatically (via AESA) or manual
for example if a conductor resistance once again is to be measured after jacketing

R2 Round cable IEC 60811-1-2 2 layer

R3  Round cable IEC 60811-1-2 3 layer translucent XLPE

R3HD Round cable HD605 3 layer translucent XLPE

R3R  Round cable IEC 60811-1-2 3 layer Rubber type HV Cables

R3Rib  Round cable French type 3 layer Translucent with ribbed outside

R2_1  Round cable 2 Layer as one IEC 60811-1-2 (Skin coloured)

RGA  Round cable AEIC General min (USA-norm UL) 1 layer

R2A Round cable AEIC (USA-norm UL) 2 layer

R3A  Round cable AEIC (USA-norm UL) 3 layer

R1-90  Round90, (centre measuring. 12.00, 03.00, 06.00 and 09.00) - 1 layer.
Makes it possibly to adjust the extruder head by start up of a new cable much easier and quicker.
Measuring values are giving in relation to the position of the adjustment screws at the crosshead.

R2-90  Round90, (centre measuring. 12.00, 03.00, 06.00 and 09.00) - 2 layer.

R3-90  Round90, (centre measuring. 12.00, 03.00, 06.00 and 09.00) - 3 layer.

RG+OP Combined Round Closed and Open Jacket 1 Layer,
automatic detection if open or closed sample. Price for upgrade from RG

RL+OP  Combined Round Closed and Open Jacket with grows, 1 Layer
automatic detection if open or closed sample. Price for upgrade from RL

S1 Sector Cable IEC 60811-1-2 1 layer

S1+OP  Combined Sector Closed and Open, 1 Layer,
automatic detection if open or closed sample. Price for upgrade from S1

S2_1  Sector 2 Layer as one IEC 60811-1-2 (Skin coloured)

2Core  Sector 180 degree 2 Layer as one IEC 60811-1-2 (Skin coloured)

S3  Sector Cable IEC 60811-1-2 3 layer

SKX  Lamp connection cord

SLOT Slotted core centre element

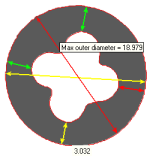
SPT3  Flat with 3 holes, the middle one from an insulated conductor

TWFC  Laud speaker cable (twin flat core)

More programs are available, only often used programs above.

ACM AB
Drakvägen 8, SE-175 65 JÄRFÄLLA, Sweden.
Phone +46 - 8 89 27 15, e-mail ksm@acmab.com www.acmab.com

23 Print Image including save measured image function



If selected in Setup the image including measuring lines are automatically stored. This image can then be located via Trend curves. The same can then also be enclosed in Protocols created long time after measuring in the KSMData Dataviewer.

24 Label Printer, additional to the normal included printer function

A separate printer selected in Setup printing only some selected data for a label typically used to stick onto a drum card.

25 Bare code Printer function

For additional bare code printing at the normal measurement protocol.

ACM AB
Drakvägen 8, SE-175 65 JÄRFÄLLA, Sweden.
Phone +46 - 8 89 27 15, e-mail ksm@acmab.com www.acmab.com