Measuring Systems

MEASURING SYSTEMS

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MS-DIN

Coaxial cylinders measuring systems according to DIN / ISO 3219 (316L stainless steel).

These systems make it possible to set the shear rate in order to carry out viscosity measurements or to obtain curves to study flow behavior, yield stress or thixotropy.

They are particularly suitable for the control or development of homogeneous products with liquid aspect and with or without particles (size <200µm).

These measurement systems are not compatible with the B-ONE PLUS and all instruments in LR version.

These measuring systems are compatible with our temperature regulations CT DIN, EVA DIN, EVA 100 and RT1

Name	Part number	
MK - DIN 1	112820	
MK – DIN 2	112821	
MK - DIN 3	112822	
MK – DIN 9	111875	
DIN 1 Tube	112932	6
DIN 2 Tube	112937	
DIN 3 Tube	112938	
DIN 1 Cap	112872	
DIN 2 Cap	112877	
DIN 3 Cap	112878	
Mooney Cap	112874	
ST-R centring tool	114436	
DIN 1 S Tube	112933	
DIN 2 S Tube	112948	
DIN 3 S Tube	112944	

MS-DIN

DIN 11 measuring system PN 112801



N° 1 CAP PN 112872



DIN 22 measuring system

PN 112804

N° 2 CAP PN 112877

DIN 33 measuring system PN 112805



COMPLETE MEASURING SYSTEMS WITH BAYONET COUPLING

Designation Part Number Measuring Measuring		Diameter (mm)		Sample volume ^{b)}	Shear rate range for	Shear rate range for	Viscosity range for FIRST	Viscosity range for RM100-200
System	systema	inner	outer	(ml)	FIRST (s-1)	RM100-200 (s-1)	(mPa.s)	(mPa.s)
MS DIN 11	112801	30	32,5	27	0.4 to 320	0.4 to 1900	25 to 0.44M	3 to 1M
MS DIN 12	112802	24	32,5	46	0.1 to 90	0.1 to 530	110 to 2.3M	18 to 5.5M
MS DIN 13	112803	14	32,5	61	0.1 to 35	0.1 to 220	920 to 8.3M	146 to 19M
MS DIN 19	112806	31,5	32,5	25	1 to 800	1.0 to 4800	8 to 0.17M	1 to 0.39M
MS DIN 22	112804	24	26	22	0.4 to 320	0.4 to 1900	40 to 0.86M	7 to 2M
MS DIN 33	112805	14	15	14	0.4 to 320	0.4 to 1900	200 to 4.3M	34 to 10M
MS DIN 11 Mooney	112812	30	32,5	23	0.4 to 320	0.4 to 1900	21 to 0.44M	3 to 1M
MS DIN 19 Mooney	112811	31,5	32,5	18,5	1 to 800	1.0 to 4800	8 to 0.17M	1 to 0.39M
MS DIN 23	112816	14	26	36	0.1 to 48	0.1 to 280	810 to 17M	139 to 41M

M for millions, K for thousand

a) Complete system (bob+cup+cap)

b) Volume required for Pt100 immersion

Measuring Systems

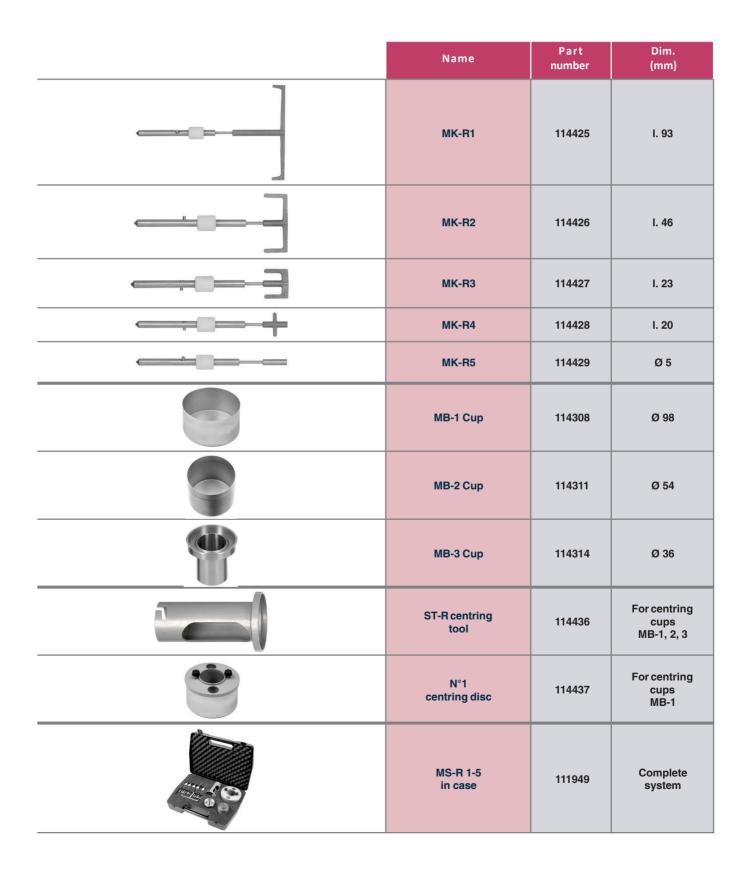
M S - R

Anchor-type measuring systems (316L stainless steel).

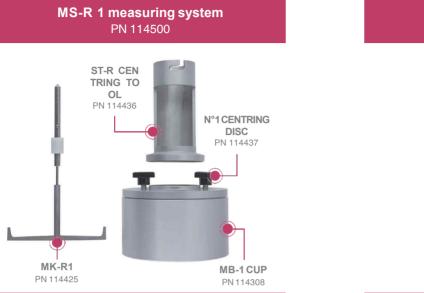
These systems are ideally suited for measuring viscosity (value or curve) in the control or development of heterogeneous products, or having the appearance of soft solid at rest, present in cosmetics, paint, food or mineral chemistry industries. Used with their respective buckets, they allow to apply a shear rate.

These systems are not compatible with B-ONE / FIRST PLUS and all instruments in LR version.

These systems are compatible with our EVA DIN-MSR and EVA MSR temperature regulation



MS-R



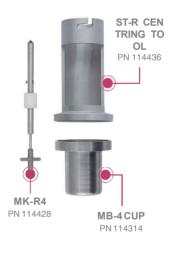
MS-R3 measuring system PN 114502







MS-R4 measuring system PN 114503



COMPLETE MEASURING SYSTEMS WITH BAYONET COUPLING

Designation	n Part Number Part Nu		Part Number Diameter (mm)		er (mm)	Sample volume	Shear rate range for	Viscosity range for						
system	System	Complete set ^{d)}		inner	outer	(ml)	RM100-200 (s-1)	RM100-200 (mPa.s)						
MS-R1°)	114500 ^{a)}			93	98	300	200 rpm	1 to 40 UD						
MS-R2	114501 ^{a)}			46	54	70	0.105 to 525	12 to 3.6M						
MS-R3	114502ª)	111949 11195	111949	111949	111949	111949	111949	111949	111050	23	36	25	0.09 to 450	72 to 21.6M
MS-R4	114503 ^{a)}		111950	20	36	25	0.075 to 375	400 to 120M						
MK-R5	114429 ^{b)}			5			0.03 to 150	1.5K to 475M						

M for millions, K for thousand

a) Complete system (bob+cup+centring tool)

b) Only spindle. Can be use with cup MB2 (PN 114311) and MB3 (Pn 114314)

c) Can be used only at 200 rpm and UD result

d) Complete set in case with cup and centring part

All data given in this table are given for information and can be changed according container use for measurement.

MSASTM

Measuring spindles according to ASTM / ISO 2555 (316L stainless steel). These systems are ideally suited for simple viscosity measurement at controlled rotational speed in all areas of activity. The standard recommends use of 600ml beaker for measurement. These systems are compatible with all instruments and our temperature control EVA LR.

Dim. Part Name number (mm) L-1 spindle 111010 Ø 18.80 - L 65,1 L-2 spindle 111011 Ø 18,72 - L 6,86 111012 L-3 spindle Ø 12,60 - L 1,78 L-4 spindle 111013 Ø 3,20 - L 31 Axis R 1-6 111000 Threaded axis without disc R-1 Disc 111001 Ø 56,26 R-2 Disc R-3 Disc **R-1 Disc** R-2 Disc 111002 Ø 46,93 R-3 Disc 111003 Ø 34,69 **R-4 Disc** 111004 Ø 27,30 R-4 Disc R-5 Disc R-6 **R-5 Disc** 111005 Ø 21,14 R-6 Disc 111006 Ø 14,62 111007 Axis R-7 Ø 3,20 Axis L-R 111008 Adaptation axis 1

SPINDLE WITH BAYONET COUPLING

Designation spindle	Part Number Spindle		lumber ete set ^{b)}	Viscosity range for version LR (mPa.s)	Viscosity range for FIRST/B-ONE (mPa.s)	Viscosity range for RM100-200 (mPa.s)
RV1	111001 ^{a)}			Not Usable	100 to 0.6M	50 to 1.4M
RV2	111002 ^{a)}			200 to 0.14M	200 to 2.4M	100 to 5.5M
RV3	111003 ^{a)}			300 to 0.37M	300 to 6M	150 to 14M
RV4	111004 ^{a)}		111948	400 to 0.74M	600 to 12M	200 to 28M
RV5	111005 ^{a)}	111947		500 to 1.4M	1.2K to 24M	300 to 55M
RV6	111006 ^{a)}			1200 to 3.7M	2.8K to 60M	500 to 130M
RV7	111007			4500 to 15M	12K to 240M	2K to 550M
LV1	111010			15 to 0.25M	200 to 4.3M	35 to 10M
LV2	111011		044	50 to 1.3M	1K to 20M	170 to 50M
LV3	111012	111	1014	200 to 5M	4k to 82M	650 to 190M
LV4	111013			1000 to 22M	17K to 370M	3K to 860M

M for millions, K for thousand

a) Need additional axis (PN111000)

b) Complete set (delivered with axis PN 111000 only for RV spindle)

MSBV

Measuring spindle for 150ml beaker (316L stainless steel).

These spindles are ideally suited for simple viscosity measurement at a rotating speed in control in all areas of a ctivity. They are appreciated for their ease of use and the low volume of product needed compared to the ASTM MS measurement spindle.

These measuring spindles are not compatible with instruments in LR version.

Name	Part number	Dim. (mm)
BV 1-100 Axis	117102	-
BV centring device	117202	-
BV Disc n°1	117001	Ø 45
BV Disc n°10	117010	Ø 40
BV Disc n°100	117100	Ø 20
BV 1000 Axis	117101	Ø 4
150-ml glass beaker	117150	Ø 50-52
MS TI Tube	118001	Ø 50

SPINDLE WITH BAYONET COUPLING

Designationspindle	on Part Number Spindle ^{b)}	Part Number Complete set	Viscosity range for FIRST/B-ONE (mPa.s)	Viscosity range for RM100-200 (mPa.s)
BV1	117001 ^{a)}		15 to 0.25M	2 to 0.6M
BV10	117010 ^{a)}	447000	100 to 2M	17 to 5.1M
BV100	117100 ^{a)}	117000	1K to 22M	170 to 51M
BV1000	117101		10K to 220M	1.7K to 510M

M for millions, K for thousand

Use specific glass Beaker (PN117150 for 10pcs) or specific plastic beaker (PN117155 for 10 pcs)

a) Need additional axis (PN 117102)

b) Need to be used with Centring piece (PN 117202)

c) Complete set delivered with axis (PN117102) and centring tool (PN 117202)

MSVANE

Measuring spindles with blades (316L stainless steel).

These systems are ideal for viscosity measurement (value or curve) in control or development of all types of products even of very high viscosity with or without particles (size <5mm).

They can be used for direct measurement in user's containers or in tubes of MS-DIN systems.

These systems are not compatible with all instruments in LR version.

Name	Part number	Dim. (mm)
Vane 72	120017	Ø 21,67 - L43,38
Vane 73	111108	Ø 12,67 - L25,35
Vane 74	111115	Ø 5,89 - L 11,76
Vane 72 6 blades	111121	Ø 21,67 - L43,38

SPINDLE WITH BAYONET COUPLING

Designation spindle ^{a)}	Part Number spindle	Diameter (mm)	Lenght (mm)	Shear rate range for FIRST/B-ONE (s-1)	Shear rate range for RM100-200 (s-1)	Viscosity range for FIRST/B-ONE (mPa.s)	Viscosity range for RM100-200 (mPa.s)
Vane 72	120017	22	43		0.3 to 1500	314 to 6.8M	52 to 15.7M
Vane 72/2	111112	22	20		0.3 to 1500	540 to 11.7M	90 to 27M
Vane 72/4	111113	22	10		0.3 to 1500	800 to 17M	133 to 40M
Vane 72-6P	111121	22	43	0.3 à 250	0.3 to 1500	300 to 6.5M	50 to 15M
Vane 73	111108	13	26		0.3 to 1500	1.5K to 34M	262 to 78M
Vane 74	111115	6	12		0.3 to 1500	15.7K to 340M	2.6K to 785M

M for millions, K for thousand

a) All Vane system get 4 blades (exept PN 111121 6 blades). Can be used with DIN tube

All data given in this table are given for information and can be changed according container use for measurement.

MSKREBS

Krebs type measuring spindles compatible with ASTM D562 standard (316L stainless steel). These systems are ideal for viscosity measurement in Krebs units in control of all types of products. They can be used for direct measurement in user containers or in 600 or 150ml beakers. *These systems are not compatible with all instruments in LR version.*

Name	Part number	Dim. (mm)	
MK-KU 1-10	111100	I. 53,98	
МК-75Ү	111103	I. 42,88	

MS CHOCOLATE

Coaxial cylindrical measuring systems compatible with OICC and IOCCC standard (316L stainless steel). T hese measuring spindle measure viscosity and flow limit of chocolates according to Casson and Windhab r egressions models as recommended in OICC and IOCCC standards.

These measuring systems are not compatible with the B-ONE / FIRST PLUS and all instruments in LR version. These measuring systems are compatible with our EVA DIN and EVA 100 temperature regulations.

	Name	Part number	Dim. (mm)
	МК-С	116002	Ø 13,60
	C Tube with insert	116001	Ø 20
1	DIN 1 Tube	112932	Ø 32,50
	C Insert	116004	Ø 20
	Delrin cap	116005	-

MSULV

Measuring system for low viscosities usable with instruments LR version (Aluminium).

This system, unlike the MS-ASTM or MS-DIN systems, makes it possible to measure low viscosity products in control by applying a shear rate. Its advantage is to be compatible with instruments in LR version unlike all other measuring systems. *This measurement system is not compatible with the B-ONE PLUS.*

This measuring system must be used with our temperature regulation CT DIN, EVA DIN and RT1 (according to models, see table).

Name	Part number	Dim. (mm)	
МК-С19	116016	Ø 19	
C Tube with insert	116001	Ø 20	
Delrin cap	116005	-	
C Insert	111934	-	0
ST-R centring tool	114436	-	
MB-C Alu Cup	114306	Ø 20	

MEASURING SYSTEM WITH BAYONET COUPLING FOR DEVICE VERSION LR

Designation Measuring			er (mm)	Volume	Shear rate range	Viscosity range ^{o)}	
system	Measuring system	inner	outer	sample (ml)	(s-1)	(mPa.s)	
MS-C19(light)-C	116030 ^{a)}	19	20	9	4 4- 540	4 to 26K	
MS-C19(light)-C(disposable)	116031 ^{b)}	19	20	9	1 to 510		

M for million, K for thousand

a) Not compatible with oven RT1. Can be used without temperature control

b) Delivered with 100 disposable cup

Measuring Systems

MEASURING SYSTEMS

MSSV

Measuring systems for low volumes (316L stainless steel)

These systems, unlike the MS-ASTM and MS-DIN systems, make it possible to measure products in small quantities by applying a shear rate up to temperatures of 200 ° C (according to models, see table). With RT1, these systems are compatible with ASTM D3236.

These measurement systems are not compatible with the B-ONE PLUS and the LR version instruments.

These measuring systems must be used with our temperature regulations CT DIN, EVA DIN and RT1 (according to models, see table).

 Name	Part number
МК-С/2 МК-D МК-C МК-C18 МК-C19	116010 111878 116002 112507 116015
 DIN3S Tube	112944
C Tube with insert	116001
MB-D Alu Cup	114319
MB-C Alu Cup	114306
D Insert	150500
C Insert	111934
ST-R centring tool	114436
n°3 Cap	112878
Delrin Cap	116005

MEASURING SYSTEM WITH BAYONET COUPLING

Designation Complete	Part Number Complete	Diameter (mm)		Sample volume	Shear rate range for	Shear rate range for	Viscosity range for FIRST	Viscosity range for RM100-200			
Measuring System	measuring system	inner	outer	(ml)	FIRST (s-1)	RM100-200 (s-1)	(mPa.s)	(mPa.s)			
MS-C/2-D(disposable)	116020 ^{a)}	13,6	15	6,81		0.54,000	0.54,000	0.54,000			
MS-C/2-3S	116021	13,6	15	4,52	0.5 to 260	0.5 to 1.6K	280 to 3.7M	45 to 8.5M			
MS-D-D(disposable)	116022 ^{a)}	7,5	15	8,85	0.1 to 43	0.1.4- 10	0.4 to 000	0.01/ 4= 4014	000 to 0014		
MS-D-3S	116023	7,5	15	6,56		0.1 to 260	3.8K to 42M	630 to 98M			
MS-C-C	116000 ^{b)}	13,6	20	18,45	0.1 to 71	0.1 to 71	0.4.5.407	350 to 6.4M	58 to 15M		
MS-C-C(disposable)	116024 ^{a)}	13,6	20	22,22			0.1 to 427				
MS-C-D(disposable)	116025 ^{a)}	13,6	20	3,04	0.5 to 267	0.5 to 1.6K	116 to 1.6M	20 to 3.7M			
MS-C18-C	116026 ^{b)}	13,6	15	11	0.5 to 250		5K 71 to 0.9M	40 1 014			
MS-C18-C(disposable)	116027 ^{a)}	18	20	11		0.5 to 1.5K		12 to 2M			
MS-C19-C	116028 ^{b)}	19	20	9	4.4 540	4.4 5.40	1 40 01/	001 0 1011			
MS-C19-C(disposable)	116029 ^{a)}	19	20	9	1 to 510	1 to 3K	33 to 0.43M	6 to 1M			

M for millions, K for thousand

a) Delivered with 100 disposable cup

b) Not compatible with oven RT1. Can be used without temperature control

MSHT

Measuring systems for temperatures up to 300 ° C (316L stainless steel).

These systems make it possible to set the shear rate in order to carry out viscosity measurements or to obtain curves on products such as polymers, glues (hotmelts) or resins according to ASTM D3236 standard.

They can only be used with instruments with an AC 115 coupling.

These measurement systems are not compatible with the B-ONE / FIRST PLUS and all instruments in LR version.

These measuring systems are compatible with RT3 temperature control.

	Name	Part number	Dim. (mm)
	MK-RT II B	112570	Ø 30
	MK-RT II C	112572	Ø 13,60
	MK-RT II D	112573	Ø 7,50
	MB-B Alu Cup	114318	Batch of 100
	MB-C Alu Cup	114306	Batch of 100
	MB-D Alu Cup	114319	Batch of 100
\bigcirc	B Ring	112611	-
	C Insert	112612	-
•	D Insert	112614	-
()===	KP Insert	112613	-

COMPLETE MEASURING SYSTEM WITH AC115 COUPLING

Designation Measuring system	Part Numbera)	Diameter (mm)		Sample volume	Shear rate range for	Viscosity range for	
	Measuring system	inner	outer	(ml)	RM100-200 (s-1)	RM100-200 (mPa.s)	
MS-RT II B	112576	30	38	50	0.1 to 676	6 to 2.5M	
MS-RT II C	112577	13,6	20	17	0.1 to 428	56 to 14M	
MS-RT II D	112578	7,5	15	8	0.1 to 263	575 to 90M	
MS-RT II B35	112586	35	38	48	0.4 to 1.9K	2 to 0.5M	
MS-RT II C18	112587	18	20	11	0.4 to 1.5K	12 to 2.6M	

M for millions, K for thousand

a) Delivered complete with 100 disposable cup

MS CP bayonet

Measuring systems cone or plate compatible with DIN 53019 / ISO 3219 / ASTM D4278-D7395 (316L Stainless Steel). These systems make it possible to set the shear rate in order to carry out viscosity measurements or to obtain curves to study flow behavior, yield stress or thixotropy. They are particularly suitable for measurements on very small quanti ties for control or development of homogeneous products with or without particles (size <100µm), gainings cleaning. These measuring systems are compatible with the B-ONE PLUS and all instruments in LR version. These measuring systems are compatible with CP2000 / CP4000 instruments and CP1 temperature control.



AVAILABLE BAYONET MEASURING SYSTEM

Designation system	Part Number (bayonet) ^{b)}	Diameter (mm)	Angle (°)	Sample volume (ml)	Shear rate range for FIRST(s-1)	Shear rate range for RM100/200 (s-1)	Viscosity range for FIRST (mPa.s)	Viscosity range for RM100-200 (mPa.s)
MK-CP1010	421010	10	1	0,005	2 to 1500	2 to 9000	1300 to 24M	220 to 57M
MK-CP1020	421020	10	2	0,01	1 to 750	1 to 4500	2550 to 49M	420 to 114M
MK-CP1030	421030	10	3	0,015	1 to 500	1 to 3000	3800 to 49M	640 to 114M
MK-CP1220	421220	12	2	0,016	1 to 750	1 to 4500	1500 to 28M	250 to 66M
MK-CP2005	422005	20	0,5	0,018	4 to 3000	4 to 18000	80 to 1.5M	14 to 3.5M
MK-CP2020	422020	20	2	0,073	1 to 750	1 to 4500	320 to 6M	53 to 14M
MK-CP2045	422045	20	0,45	0,016	4 to 3325	4 to 19950	72 to 1.5M	12 to 3.5M
MK-CP2420	422420	24	2	0,126	1 to 750	1 to 4500	184 to 3.5M	31 to 8M
MK-CP2445	422445	24	0,45	0,028	4 to 3325	4 to 19950	42 to 0.9M	7 to 2M
MK-CP2520	422420	25	2	0,142	1 to 750	1 to 4500	170 to 3M	28 to 7M
MK-CP3520	423520	35	2	0,391	1 to 750	1 to 4500	60 to 1M	10 to 2.6M
MK-CP4005	424005	40	0,5	0,146	4 to 3000	4 to 18000	10 to 0.2M	2 to 0.45M
MK-CP4020	424020	40	2	0,585	1 to 750	1 to 4500	40 to 0.78M	7 to 1.8M
MK-CP4040	424040	40	4	1,17	1 to 375	1 to 2250	80 to 1.5M	14 to 1.8M
MK-CP5010	425010	50	1	0,571	2 to 1500	2 to 9000	11 to 0.2M	2 to 0.46M
MK-CP5020	425020	50	2	1,142	1 to 750	1 to 4500	21 to 0.4M	4 to 0.93M
MK-CP6005	426005	60	0,5	0,5	4 to 3000	4 to 18000	3 to 0.58M	1 to 0.135M
MK-CP6020	426020	60	2	2	1 to 750	1 to 4500	12 to 0.23M	2 to 0.54M
MK-PP20 ^{a)}	422000	20		0,314	1 to 260	1 to 1560	1250 to 16M	210 to 19M
MK-PP25 ^{a)}	422025	25		0,491	1 to 325	1 to 1965	510 to 8M	83 to 9.7M
MK-PP40 ^{a)}	424000	40		1,26	1 to 525	1 to 3150	80 to 1M	13 to 2.4M
MK-PP50 ^{a)}	425000	50		1,96	1 to 650	1 to 3900	12 to 0.2M	2 to 0.46M

M for millions, K for thousand

a) All values give for gap 1mm

b) Need adaptor PN 800146 for instruments with AC265 coupling

MS CP AC 265

Measuring systems cone or plate compatible with DIN 53019 / ISO 3219 / ASTM D4278-D7395 (316L Stainless Steel). In addition to advantages already mentioned on page 60, the AC 265 coupling guarantees quick setup of the m easuring system, better maintenance and increased repeatability. They measure all types of products and are r ecommended for high viscosities.

These measuring systems are compatible only with instruments CP2000 / CP4000.



MK-CP 40 mm AC 265

MK-CP 20 mm AC 265

MK-CP 60 mm AC 265

AVAILABLE AC 265 MEASURING SYSTEM

Designation System	Part Number System	Diameter (mm)	Angle (°)	Sample volume (ml)	Shear rate range for RM100/200 (s-1)	Viscosity range for RM100-200 (mPa.s)
MK-CP1005	265115	10	0,5	0,002	4 to 18000	110 to 28M
MK-CP2005 MK-CP2005	365205 ^{b)} 265205	20	0,5	0,018	4 to 18000	14 to 3.5M
MK-CP2015	265215	20	1,59	0,058	2 to 5700	42 to 7M
MK-CP2020 MK-CP2020	365202 ^₅) 265202	20	2	0,073	1 to 4500	53 to 14M
MK-CP2405	265245	24	0,5	0,031	4 to 18000	8 to 2M
MK-CP2420	265242	24	2	0,126	1 to 4500	31 to 8M
MK-CP4005 MK-CP4005	365405 ^{b)} 265405	40	0,5	0,146	4 to 18000	2 to 0.45M
MK-CP4015	265515	40	1,59	0,465	2 to 5700	6 to 0.9M
MK-CP4020 MK-CP4020	365402 ^{b)} 265402	40	2	0,585	1 to 4500	7 to 1.8M
MK-CP4040	265404	40	4	1,17	1 to 2250	14 to 1.8M
MK-CP5005	265505	50	0,5	0,285	4 to 18000	1 to 0.23M
MK-CP5020	265502	50	2	1,142	1 to 4500	4 to 0.93M
MK-CP6005 MK-CP6005	365605 ^{b)} 265622	60	0,5	0,5	4 to 18000	1 to 0.135M
MK-CP6010	265610	60	1	1	2 to 9000	1 to 0.27M
MK-CP6020 MK-CP6020	365602 ^{b)} 265602	60	2	2	1 to 4500	2 to 0.54M
MK-CP6030	265603	60	3	3	1 to 3000	3 to 0.54M
MK-PP20 ^{a)}	265020	20		0,314	1 to 1560	210 to 19M
MK-PP25 ^{a)}	265025	25		0,491	1 to 1965	83 to 9.7M
MK-PP28 ^{a)}	265028	28		0,616	1 to 2205	53 to 6.9M
MK-PP35 ^{a)}	265035	35		0,962	1 to 2745	22 to 3.5M

M for millions, K for thousand

a) All values give for gap 1mm

b) With truncation 50µm recommended for RM 200 CP4000