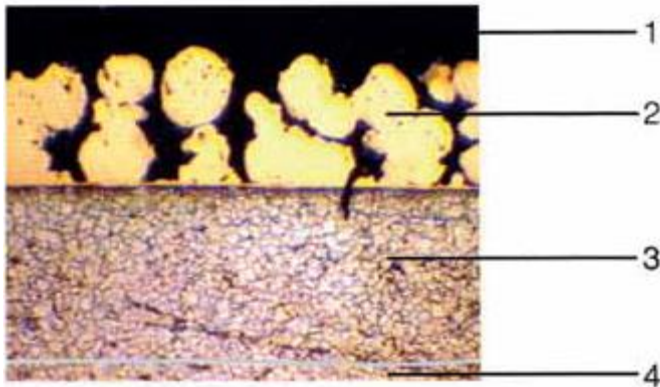




PAP ... P20 series bushes (EGB E50 / SF-2 / PCM M / PG A)

low-maintenance with lubrication pockets



Characteristics

1. Modified polyacetal (POM)	0,30 - 0,50 mm
2. Bronze poroso	0,20 - 0,30 mm
3. Steel backing	0,40 - 2,20 mm
4. Electro-plating Copper	~ 0,008 mm

Structure:

The porous bronze layer is sintered on the steel backing and has the function of bonding the sliding surface in polyacetalic resin and permitting thermal dispersion which presents sockets for collecting and gradually releasing the lubricant in order to reduce friction and protect the surface. In order to facilitate re-lubrication, the PAP ... P20 bushes have an external hole for that purpose. It is recommended to use a grease with lithium soap; on the contrary MoS₂ and grease with a graphite base are NOT suitable. The PAP ... P20 bushes have uses in multiple sectors, among which we find: mining industry and metallurgies, printing presses, hydroelectric machines and for cold lamination of steel; generally applications with periodic lubrication. The use of this type of bush is growing rapidly thanks to its principal characteristics listed as follows, which favour the elimination of diverse problems:

Advantages:

- low maintenance, due to long intervals of re-lubrication
- good adaptability to oscillating and rotating movements
- limited wear (if applied and used correctly)
- water repellent
- reduced sensibility to the loading on the edges
- good heat dispersion

Technical features:

Load capacity	70 N/mm ²
Speed limit v-max	2,5 m/s
Temperature limit	-40°C to +130°C
Friction coefficient dry	μ: 0,05 to 0,25
Pv limit	22 N/mm ² * m/s

Durability test:

The life of PAP ... P20 bush depends especially on the factor Pv, which is difficult to calculate, because it depends on several and environmental factors which can increase or decrease the operating life. These elements can be: the temperature, the finishing grade of the shaft, the alignment, the lubrication... PAP ... P20 bushes, thanks to their honey cones surface, can capture and retain more lubricants and require little maintenance compared to P10 type bushes, but they must be periodically re-lubricated in order to guarantee a much longer duration. Once the lubricant has been distributed on the sliding surface, the wear remains relatively contained, even in the presence of specific loads up to 140 N/mm²; when the lubricant starts to decrease, the wear increases noticeably. That's why it is so important to relubricate before the wearing process begins. In the (fig. 4) below, line B indicates the duration of the interval of re-lubrication while line A the duration of the PAP ... P20 material.

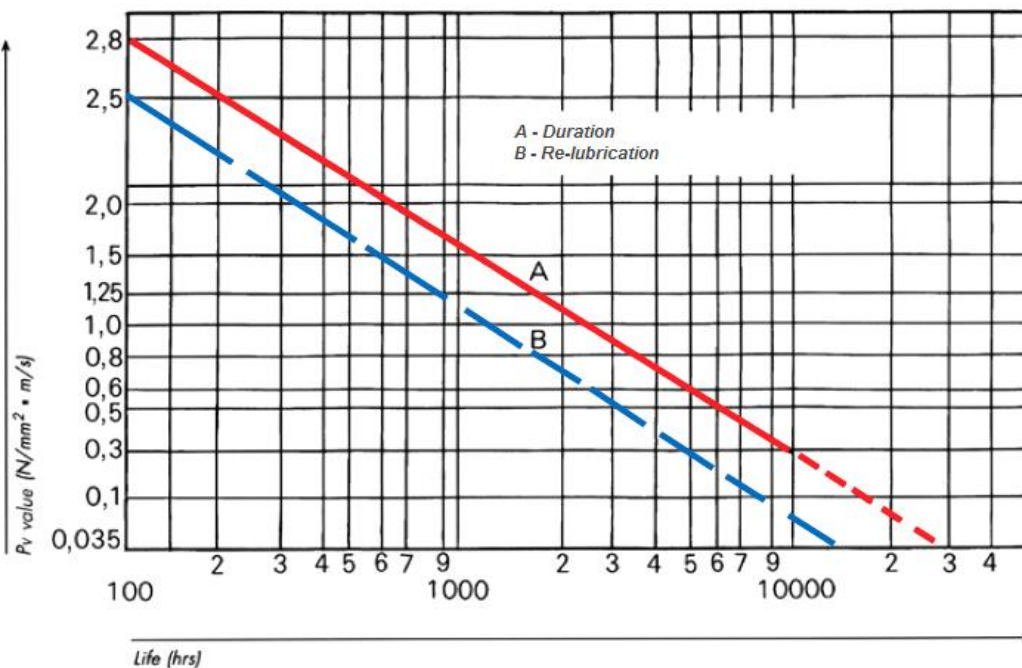


Fig. 4

When the bush reaches wear values equal to 0,15 mm it is considered depleted and therefore to be substituted.



PAP ... P20 series bushes (EGB E50 / SF-2 / PCM M / PG A)

low-maintenance with lubrication pockets

PAP ... P20 Bushes tolerances:

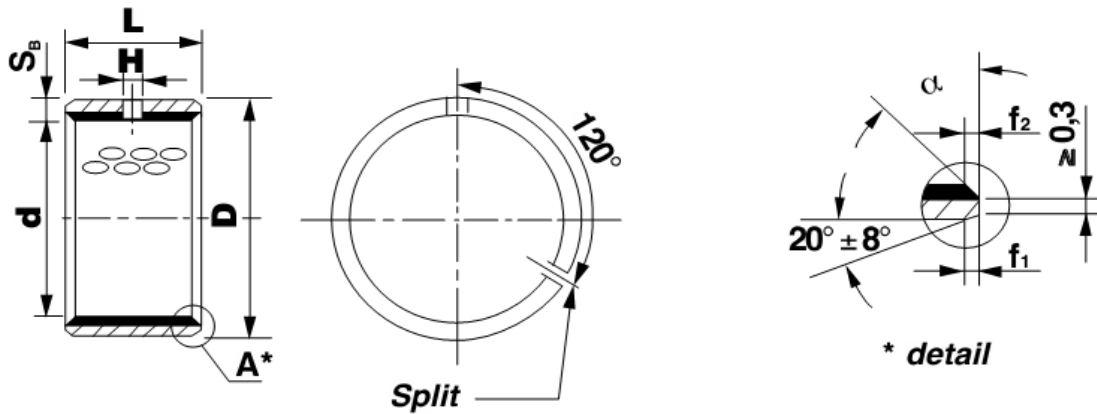
Outer Diameter D (mm)	Outer diameter tolerances D (mm)	Thickness tolerances		Chamfer dimensions		
		S_B (mm)	S_B (mm)	S_B (mm)	f_1 (mm)	f_2 (mm)
≤ 10	+ 0,055 + 0,025	1	- 0,020 - 0,045	1	$0,6 \pm 0,4$	- 0,1 - 0,4
$10 < \leq 18$	+ 0,065 + 0,030	1	- 0,020 - 0,045	1	$0,6 \pm 0,4$	- 0,1 - 0,4
$18 < \leq 30$	+ 0,075 + 0,035	1,5	- 0,025 - 0,055	1,5	$0,6 \pm 0,4$	- 0,1 - 0,6
$30 < \leq 50$	+ 0,085 + 0,045	2	- 0,030 - 0,065	2	$1,2 \pm 0,4$	- 0,1 - 0,7
$50 < \leq 80$	+ 0,100 + 0,055	2,5	- 0,040 - 0,085	2,5	$1,8 \pm 0,6$	- 0,2 - 1,0
$80 < \leq 120$	+ 0,120 + 0,070	2,5	- 0,040 - 0,085	2,5	$1,8 \pm 0,6$	- 0,2 - 1,0
$120 < \leq 180$	+ 0,170 + 0,100	2,5	- 0,040 - 0,085	2,5	$1,8 \pm 0,6$	- 0,2 - 1,0
$180 < \leq 305$	+ 0,255 + 0,125	2,5	- 0,040 - 0,085	2,5	$1,8 \pm 0,6$	- 0,2 - 1,0

Tolerance values of metric bushings PAP ... P20 comply with standard ISO 3547-1:2006

Recommended mounting tolerances:

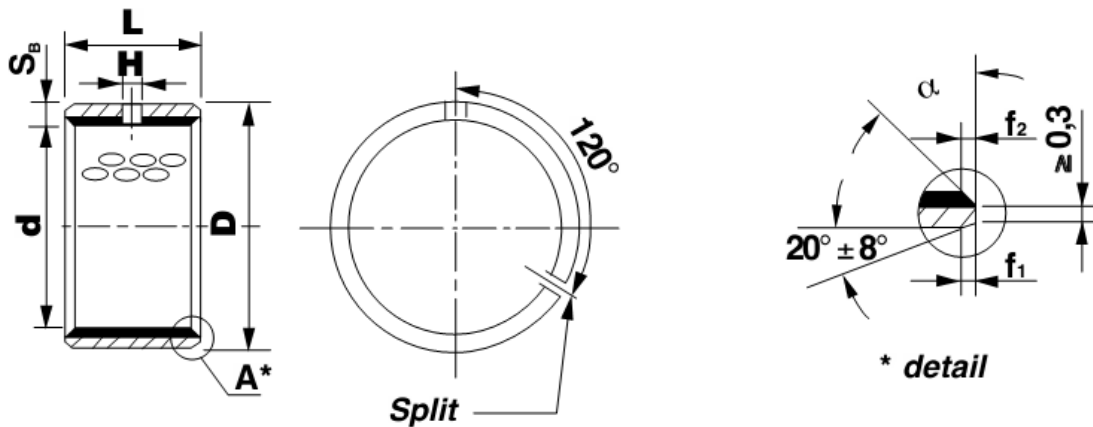
Shaft: h8

Bore: H7



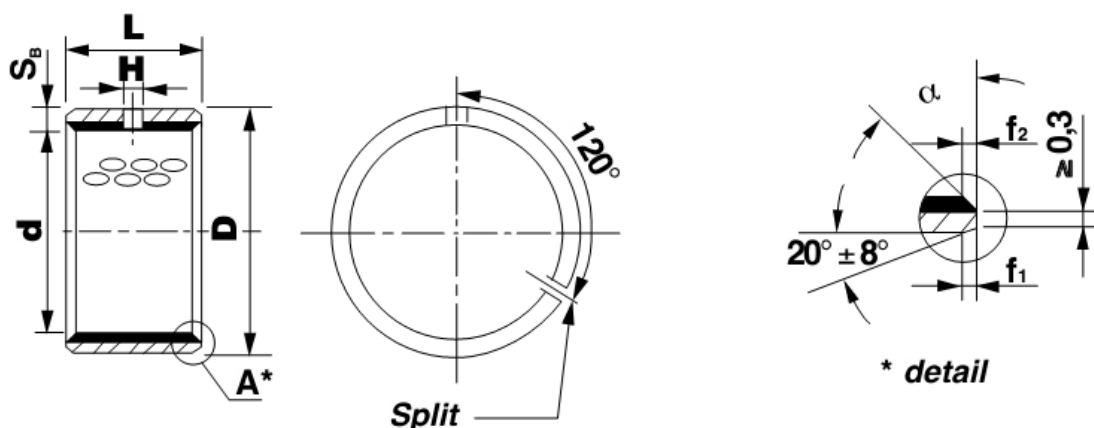
Dimensions (mm)				
Product No.	d	D	L ^{±0,25}	H
PAP0608-P20	6	8	8	*
PAP0610-P20	6	8	10	*
PAP0710-P20	7	9	10	*
PAP0808-P20	8	10	8	4
PAP0810-P20	8	10	10	4
PAP0812-P20	8	10	12	4
PAP1008-P20	10	12	8	4
PAP1010-P20	10	12	10	4
PAP1012-P20	10	12	12	4
PAP1015-P20	10	12	15	4
PAP1020-P20	10	12	20	4
PAP1210-P20	12	14	10	4
PAP1212-P20	12	14	12	4
PAP1215-P20	12	14	15	4
PAP1220-P20	12	14	20	4
PAP1225-P20	12	14	25	4
PAP1310-P20	13	15	10	4
PAP1414-P20	14	16	14	4
PAP1415-P20	14	16	15	4
PAP1420-P20	14	16	20	4
PAP1422-P20	14	16	22	4
PAP1425-P20	14	16	25	4
PAP1432-P20	14	16	32	4
PAP1510-P20	15	17	10	4
PAP1512-P20	15	17	12	4
PAP1515-P20	15	17	15	4
PAP1520-P20	15	17	20	4
PAP1525-P20	15	17	25	4
PAP1610-P20	16	18	10	4
PAP1612-P20	16	18	12	4
PAP1615-P20	16	18	15	4
PAP1616-P20	16	18	16	4
PAP1620-P20	16	18	20	4
PAP1625-P20	16	18	25	4
PAP1815-P20	18	20	15	4
PAP1818-P20	18	20	18	4
PAP1820-P20	18	20	20	4
PAP1825-P20	18	20	25	4

Dimensions (mm)				
Product No.	d	D	L ^{±0,25}	H
PAP2010-P20	20	23	10	4
PAP2012-P20	20	23	12	4
PAP2015-P20	20	23	15	4
PAP2017-P20	20	23	17	4
PAP2020-P20	20	23	20	4
PAP2025-P20	20	23	25	4
PAP2030-P20	20	23	30	4
PAP2215-P20	22	25	15	6
PAP2220-P20	22	25	20	6
PAP2222-P20	22	25	22	6
PAP2225-P20	22	25	25	6
PAP2230-P20	22	25	30	6
PAP2415-P20	24	27	15	6
PAP2420-P20	24	27	20	6
PAP2425-P20	24	27	25	6
PAP2430-P20	24	27	30	6
PAP2510-P20	25	28	10	6
PAP2515-P20	25	28	15	6
PAP2520-P20	25	28	20	6
PAP2530-P20	25	28	30	6
PAP2540-P20	25	28	40	6
PAP2550-P20	25	28	50	6
PAP2820-P20	28	32	20	6
PAP2825-P20	28	32	25	6
PAP2828-P20	28	32	28	6
PAP2830-P20	28	32	30	6
PAP3015-P20	30	34	15	6
PAP3020-P20	30	34	20	6
PAP3025-P20	30	34	25	6
PAP3030-P20	30	34	30	6
PAP3040-P20	30	34	40	6
PAP3220-P20	32	36	20	6
PAP3225-P20	32	36	25	6
PAP3230-P20	32	36	30	6
PAP3235-P20	32	36	35	6
PAP3240-P20	32	36	40	6
PAP3515-P20	35	39	15	6
PAP3520-P20	35	39	20	6



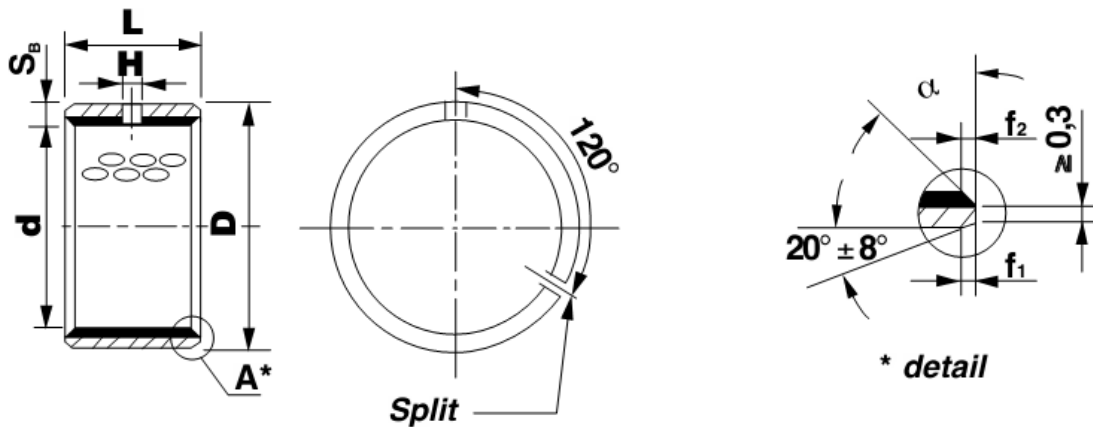
Dimensions (mm)				
Product No.	d	D	L ^{±0,25}	H
PAP3525-P20	35	39	25	6
PAP3530-P20	35	39	30	6
PAP3535-P20	35	39	35	6
PAP3540-P20	35	39	40	6
PAP3550-P20	35	39	50	6
PAP3635-P20	36	40	35	6
PAP3720-P20	37	41	20	6
PAP3730-P20	37	41	30	6
PAP4020-P20	40	44	20	8
PAP4025-P20	40	44	25	8
PAP4030-P20	40	44	30	8
PAP4040-P20	40	44	40	8
PAP4050-P20	40	44	50	8
PAP4520-P20	45	50	20	8
PAP4525-P20	45	50	25	8
PAP4530-P20	45	50	30	8
PAP4535-P20	45	50	35	8
PAP4540-P20	45	50	40	8
PAP4545-P20	45	50	45	8
PAP4550-P20	45	50	50	8
PAP5020-P20	50	55	20	8
PAP5025-P20	50	55	25	8
PAP5030-P20	50	55	30	8
PAP5040-P20	50	55	40	8
PAP5050-P20	50	55	50	8
PAP5055-P20	50	55	55	8
PAP5060-P20	50	55	60	8
PAP5520-P20	55	60	20	8
PAP5525-P20	55	60	25	8
PAP5530-P20	55	60	30	8
PAP5540-P20	55	60	40	8
PAP5550-P20	55	60	50	8
PAP5555-P20	55	60	55	8
PAP5560-P20	55	60	60	8
PAP6030-P20	60	65	30	8
PAP6040-P20	60	65	40	8
PAP6050-P20	60	65	50	8
PAP6060-P20	60	65	60	8

Dimensions (mm)				
Product No.	d	D	L ^{±0,25}	H
PAP6070-P20	60	65	70	8
PAP6530-P20	65	70	30	8
PAP6540-P20	65	70	40	8
PAP6550-P20	65	70	50	8
PAP6560-P20	65	70	60	8
PAP6565-P20	65	70	65	8
PAP6570-P20	65	70	70	8
PAP7030-P20	70	75	30	8
PAP7040-P20	70	75	40	8
PAP7050-P20	70	75	50	8
PAP7060-P20	70	75	60	8
PAP7065-P20	70	75	65	8
PAP7070-P20	70	75	70	8
PAP7080-P20	70	75	80	8
PAP7540-P20	75	80	40	9,5
PAP7560-P20	75	80	60	9,5
PAP7575-P20	75	80	75	9,5
PAP7580-P20	75	80	80	9,5
PAP8040-P20	80	85	40	9,5
PAP8050-P20	80	85	50	9,5
PAP8055-P20	80	85	55	9,5
PAP8060-P20	80	85	60	9,5
PAP8080-P20	80	85	80	9,5
PAP80100-P20	80	85	100	9,5
PAP8530-P20	85	90	30	9,5
PAP8540-P20	85	90	40	9,5
PAP8550-P20	85	90	50	9,5
PAP8560-P20	85	90	60	9,5
PAP8580-P20	85	90	80	9,5
PAP8585-P20	85	90	85	9,5
PAP85100-P20	85	90	100	9,5
PAP9040-P20	90	95	40	9,5
PAP9060-P20	90	95	60	9,5
PAP9080-P20	90	95	80	9,5
PAP9090-P20	90	95	90	9,5
PAP90100-P20	90	95	100	9,5
PAP9530-P20	95	100	30	9,5
PAP9560-P20	95	100	60	9,5



Dimensions (mm)				
Product No.	d	D	L ^{±0,25}	H
PAP95100-P20	95	100	100	9,5
PAP10030-P20	100	105	30	9,5
PAP10040-P20	100	105	40	9,5
PAP10050-P20	100	105	50	9,5
PAP10060-P20	100	105	60	9,5
PAP10080-P20	100	105	80	9,5
PAP10090-P20	100	105	90	9,5
PAP10095-P20	100	105	95	9,5
PAP100100-P20	100	105	100	9,5
PAP100115-P20	100	105	115	9,5
PAP10550-P20	105	110	50	9,5
PAP10560-P20	105	110	60	9,5
PAP10580-P20	105	110	80	9,5
PAP10595-P20	105	110	95	9,5
PAP105105-P20	105	110	105	9,5
PAP105110-P20	105	110	110	9,5
PAP105115-P20	105	110	115	9,5
PAP11030-P20	110	115	30	9,5
PAP11050-P20	110	115	50	9,5
PAP11060-P20	110	115	60	9,5
PAP11080-P20	110	115	80	9,5
PAP11095-P20	110	115	95	9,5
PAP110110-P20	110	115	110	9,5
PAP110115-P20	110	115	115	9,5
PAP11550-P20	115	120	50	9,5
PAP11570-P20	115	120	70	9,5
PAP12040-P20	120	125	40	9,5
PAP12060-P20	120	125	60	9,5
PAP12080-P20	120	125	80	9,5
PAP120100-P20	120	125	100	9,5
PAP120110-P20	120	125	110	9,5
PAP120120-P20	120	125	120	9,5
PAP12550-P20	125	130	50	9,5
PAP12560-P20	125	130	60	9,5
PAP12580-P20	125	130	80	9,5
PAP125100-P20	125	130	100	9,5
PAP125110-P20	125	130	110	9,5
PAP125125-P20	125	130	125	9,5

Dimensions (mm)				
Product No.	d	D	L ^{±0,25}	H
PAP13050-P20	130	135	50	9,5
PAP13060-P20	130	135	60	9,5
PAP13080-P20	130	135	80	9,5
PAP130100-P20	130	135	100	9,5
PAP130130-P20	130	135	130	9,5
PAP13530-P20	135	140	30	9,5
PAP13560-P20	135	140	60	9,5
PAP13580-P20	135	140	80	9,5
PAP14050-P20	140	145	50	9,5
PAP14060-P20	140	145	60	9,5
PAP14080-P20	140	145	80	9,5
PAP140100-P20	140	145	100	9,5
PAP140140-P20	140	145	140	9,5
PAP15050-P20	150	155	50	9,5
PAP15060-P20	150	155	60	9,5
PAP15080-P20	150	155	80	9,5
PAP150100-P20	150	155	100	9,5
PAP150150-P20	150	155	150	9,5
PAP16050-P20	160	165	50	11
PAP16060-P20	160	165	60	11
PAP16080-P20	160	165	80	11
PAP160100-P20	160	165	100	11
PAP160160-P20	160	165	160	11
PAP17050-P20	170	175	50	11
PAP17060-P20	170	175	60	11
PAP17080-P20	170	175	80	11
PAP170100-P20	170	175	100	11
PAP170170-P20	170	175	170	11
PAP18050-P20	180	185	50	11
PAP18060-P20	180	185	60	11
PAP18080-P20	180	185	80	11
PAP180100-P20	180	185	100	11
PAP180180-P20	180	185	180	11
PAP19050-P20	190	195	50	11
PAP19060-P20	190	195	60	11
PAP19080-P20	190	195	80	11
PAP190100-P20	190	195	100	11
PAP190120-P20	190	195	120	11



Product No.	Dimensions (mm)			
	d	D	L ^{±0,25}	H
PAP190190-P20	190	195	190	11
PAP20050-P20	200	205	50	11
PAP20060-P20	200	205	60	11
PAP20080-P20	200	205	80	11
PAP200100-P20	200	205	100	11
PAP200120-P20	200	205	120	11
PAP200200-P20	200	205	200	11
PAP22050-P20	220	225	50	12
PAP22060-P20	220	225	60	12
PAP22080-P20	220	225	80	12
PAP220100-P20	220	225	100	12
PAP220120-P20	220	225	120	12
PAP220220-P20	220	225	220	12
PAP24050-P20	240	245	50	12
PAP24060-P20	240	245	60	12
PAP24080-P20	240	245	80	12
PAP240100-P20	240	245	100	12
PAP240120-P20	240	245	120	12
PAP240240-P20	240	245	240	12
PAP25050-P20	250	255	50	12
PAP25060-P20	250	255	60	12
PAP25080-P20	250	255	80	12

Product No.	Dimensions (mm)			
	d	D	L ^{±0,25}	H
PAP250100-P20	250	255	100	12
PAP250120-P20	250	255	120	12
PAP250250-P20	250	255	250	12
PAP26050-P20	260	265	50	12
PAP26060-P20	260	265	60	12
PAP26080-P20	260	265	80	12
PAP260100-P20	260	265	100	12
PAP260120-P20	260	265	120	12
PAP260260-P20	260	265	260	12
PAP28050-P20	280	285	50	12
PAP28060-P20	280	285	60	12
PAP28080-P20	280	285	80	12
PAP280100-P20	280	285	100	12
PAP280120-P20	280	285	120	12
PAP280280-P20	280	285	280	12
PAP30050-P20	300	305	50	12
PAP30060-P20	300	305	60	12
PAP30080-P20	300	305	80	12
PAP300100-P20	300	305	100	12
PAP300120-P20	300	305	120	12
PAP300300-P20	300	305	300	12