

Control Valves

Type KD10

DESCRIPTION

Manufactured under ISO 9001 quality assurance system, the KD10 series is a top entry globe valve style body construction with a wide range of different single stage trims available. KD10 series combine the advanced modular design and the wide range of actuators to satisfy the needs of the industrial demand.

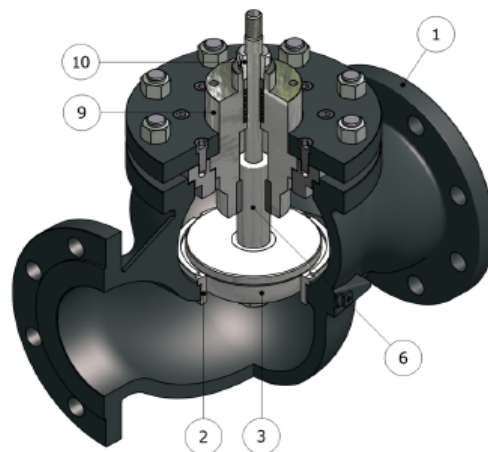
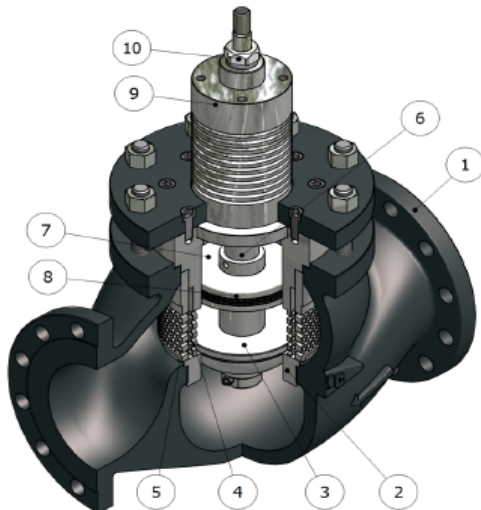
KD10 valves are designed to control a broad variety of fluids, like steam, water, most of the medium and gases. One of the main features of this series is the top guided construction that assures a stable plug travel over entire stroke of the valve minimizing vibration and wear.

DESIGN FEATURES

Top Guided std construction ensure plug stability
 NAMUR IEC534.6 clamp Std
 V-Ring double packing
 Shutoff capabilities : Class IV (Std), V, VI
 Wide range of actuators to handle different pressure drops

OPTIONS

Reduced area trim to provide wide range capabilities for all valve sizes
 Hardened trims to handle high pressure drop applications.
 Balanced trims to handle high pressure drop and shut off
 Low noise & anticavitation design cage
 Reduced capacity & low flow trim in all sizes
 Bellows seal to meet zero emissions (ZEB20)
 Extended bonnet for low temperature
 Finned bonnet for high temperature
 Many available options (positioners, position transmitter, limit switches, lock-up etc..)
 NACE 0175/2003 or ISO15156 Construction on request



PARTS

1- Body Valve
2- Seat Ring
3- Plug
4- 1st low dB/anticavitation cage
5- 2nd low dB/anticavitation cage
6- Top-guide stem
7- Balancing sleeve
8- Balancing piston
9- Valve Bonnet
10- Stuffing box

VALVE BODY CHARACTERISTICS

Style	Top Entry, single seated, globe valve
SIZES	from DN15 to DN200
PRESSURE RATING	PN16 - PN25 - PN40
BODY FACE TO FACE DIMENSIONS	In accordance with EN 558-1
FLANGES CONNECTIONS	EN 1092-1

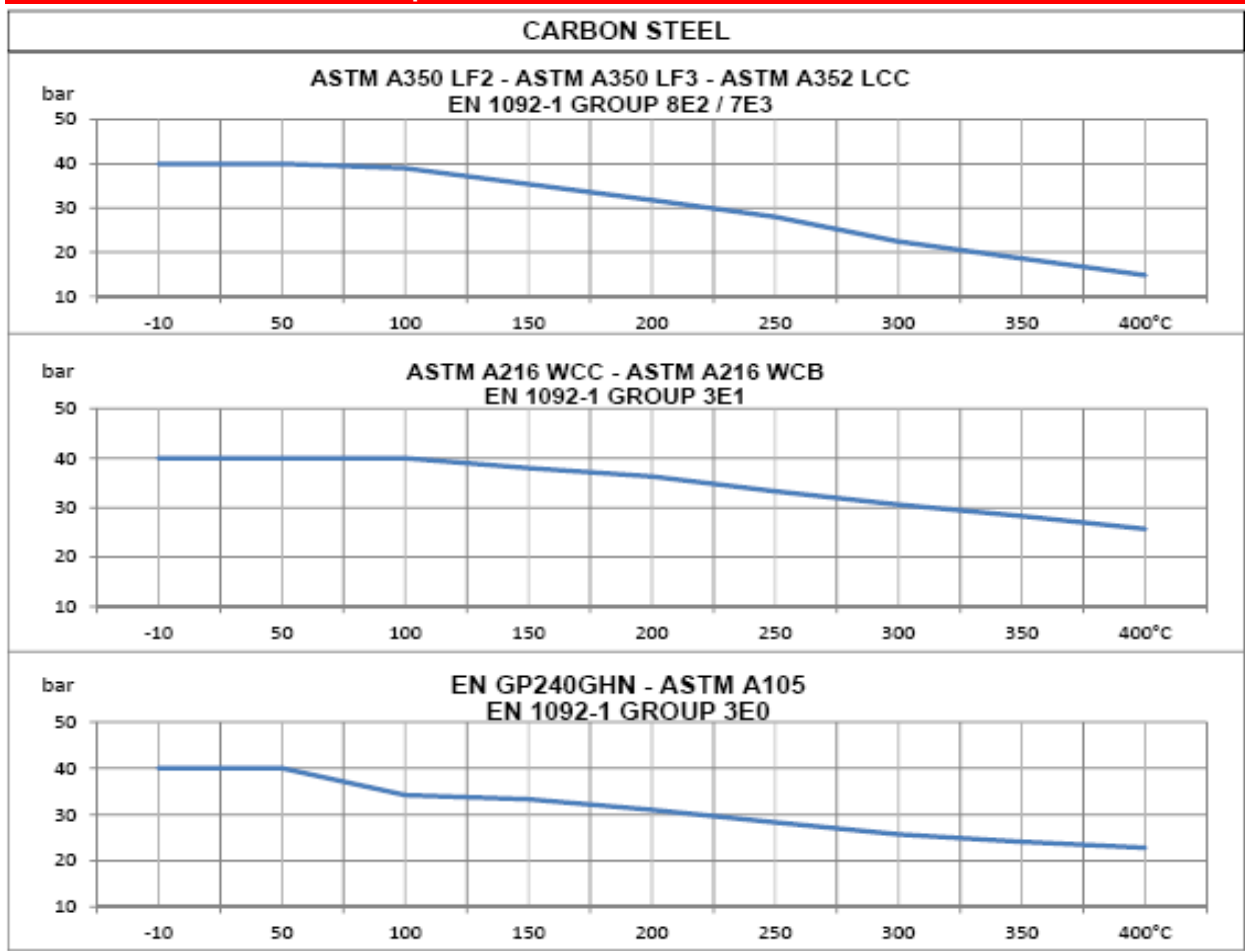
STD BODY & TRIM MATERIALS COMBINATION

Valve Body : Carbon steel A216 WCC	Bonnet: ASTM A105
	Trim: ASTM A213 Type 304 (AISI 316 on request)
Valve Body: Stainless steel A351 CF8M	Bonnet: ASTM A213 Type 304 (AISI 316 on request)
	Trim: ASTM A213 Type 304 (AISI 316 on request)

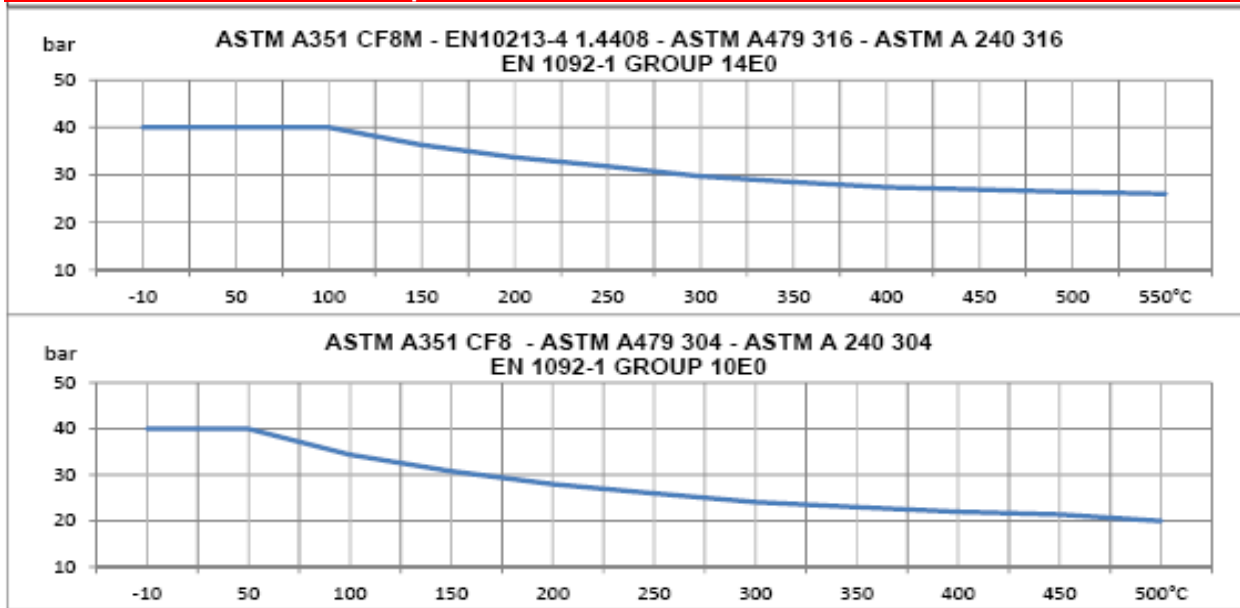
BODY MATERIALS CROSS REFERENCE

	European Std	Temp. Application Limits
Carbon Steel A216 WCC	1.0619 GP240GH	-20÷800°F (-29÷427°C)
Stainless Steel A351 CF8M	1 4408 X5CrNiMo	-320÷1004°F (-196÷540°C)

Relation between Pressure/Temperature



Relation between Pressure/Temperature



COMBINATION BODY & TRIM for SPECIAL MATERIALS

Valve Body : Carbon steel A352LCB/LCC Appl. limits (-46 + 343 °C)	Bonnet: ASTM 352 LF2 Trim: ASTM A213 Type 304 (AISI 316 on request)
Valve Body : Stainless steel A351 CF8 Appl. limits (-254 + 816 °C)	Bonnet: ASTM A213 Type 304 (AISI 316 on request) Trim: ASTM A213 Type 304 (AISI 316 on request)
Valve Body: DUPLEX ASTM A 890 4A (SAF 2205)	Bonnet: ASTM A-276 S31803 Intern.: ASTM A-276 S31803
Valve Body : MONEL ASTM A-494 M-35-1	Bonnet: ASTM B-164-98 Trim: ASTM B-164-98

BONNET

STANDARD	standard from 23÷ 392°F (-5 ÷200°C)
ON REQUEST	Finned for temp. >392°F (>200°C) Extended for temp. <23°F (<-5°C)



Extended










Standard



Finned

PACKING

HT200 for temp. $\leq 450^{\circ}\text{F}$ (230°C) Standard from 1" to 4"	
GR20 - PUREGRAPHITE $\leq 750^{\circ}\text{F}$ (400°C) Standard from 6" to 8"	
HTS300 for temp. $\leq 750^{\circ}\text{F}$ (400°C) On Request from 1" to 4"	
GreenPack for temp. $\leq 840^{\circ}\text{F}$ (450°C) Low Emissions/Firesafe On Request from 1" to 8"	 
ZEB20 - Bellows sealed for dangerous fluids - Zero Emissions On Request from 1" to 8"	 



MAINTENANCE FREE



LOW EMISSIONS PACKING



ZERO EMISSIONS PACKING



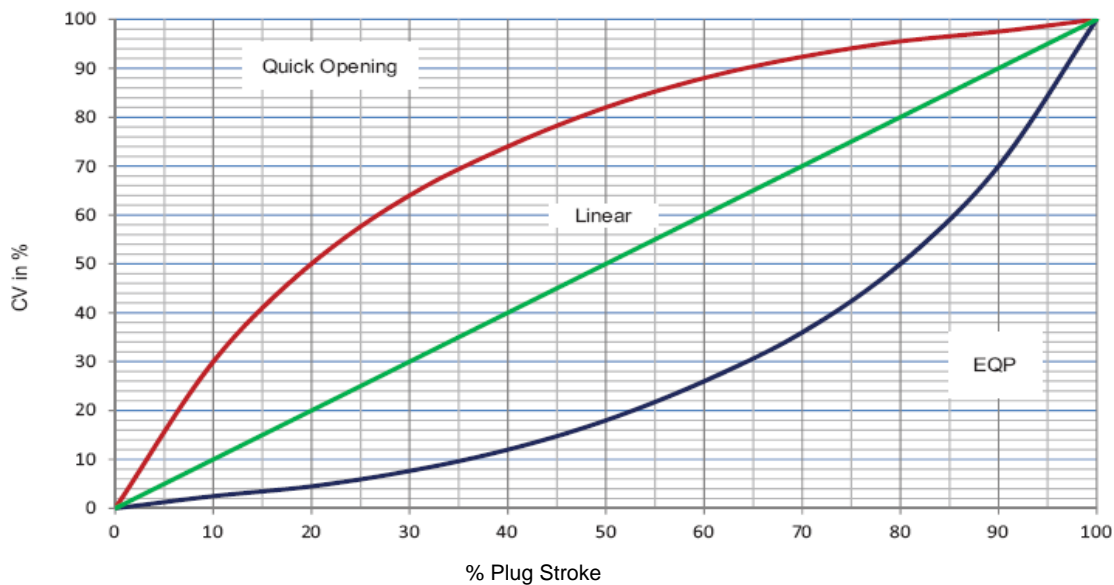
HT200

GREEN PACK HTS300

GR20

ZEB20

PLUG CHARACTERISTICS



Quick Opening Flow Characteristic

A valve with quick opening flow characteristic provides a maximum change in flow rate at low travels and small changes when the valve plug is near maximum. Control valves with quick opening flow characteristics are often used for on/off applications where significant flow rate must be established quickly as the valve begins to open. Consequently they are often used in relief valve applications.

Quick opening valves can also be selected for many of the same applications for which linear flow characteristics are recommended.

Linear characteristic

A valve with linear characteristic provide a flow rate directly proportional to travel. Linear characteristics are commonly specified for liquid-level and flow-control applications.

Equal Percentage Flow Characteristic (EQP)

In equal percentage flow characteristic, equal increments of valve travel produce equal percentage changes in the existing flow. A valve with an inherent equal percentage flow characteristic provides precise throttling control through the lower portion of the travel range and rapidly increasing capacity as the valve plug nears the wide open position. Valves with equal percentage flow characteristics are used on pressure control applications, on applications where a large percentage of the pressure drop is normally absorbed by the system itself with only a relatively small percentage available at the control valve, and on applications where highly varying pressure conditions can be expected.

TRIMS

SEAL	Metal seat tightness - Class IV°
PLUG TYPES	Parabolic Equal Perc. (EQP)
	ON-OFF (PT)
	Linear (PL)
PORT	Full port
ON REQUEST	Reduced port
	Microflow port
	Stellite faced seat/plug Class IV°
	PTFE soft seal ≤ 300°F (150°C) - Class VI°
	PTFE/GR soft seal ≤ 375°F (190°C) - Class VI°



Micro plug
CV from 0,05



Contoured trim
CV from 0.1



Contoured trim
CV from 1



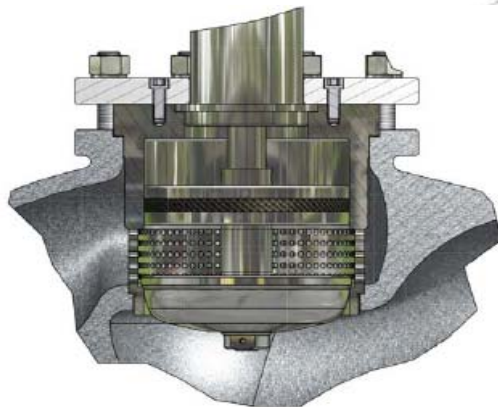
Quick opening trim



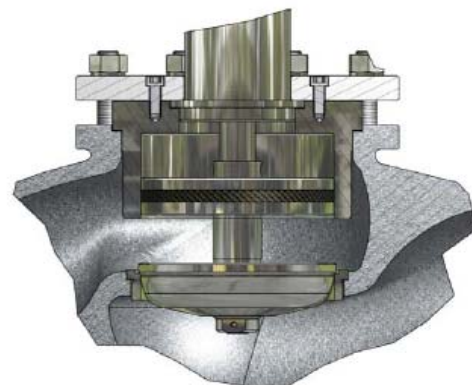
EQP trim soft tightness



trim metal tightness



Balanced trim with cage noise reduction and/or anticavitation



Balanced trim

FLOW RATE COEFFICIENTS

(CV= flowrate in USGPM with 1 psi of differential Pressure)

(Kv= flowrate in m³/h with 1 bar of differential Pressure)

CV	Kv	SIZES							
		1"	1,5"	2"	3"	4"	6"	8"	
0.05 ÷ 3.5	0.04 ÷ 4	■							
4.5	3.8	■							
6	5.1	■	■						
11	9.4	std	■	■					
18	15.4		■	■					
27	22.2		std	■	■				
47	40.1			std	■	■			
73	63.4				■	■			
105	89.7				std	■	■		
160	136.7					std	■	■	
270	230.8						■	■	
370	316.2						std	■	
650	555							std	

not available
 std
 standard
 ■
 on request

CONTROL PNEUMATIC ACTUATOR

MAXIMUM PERMISSIBLE PRESSURE DROPS IN BAR (Fluid open)

ATTUATORE ACTUATOR	SEGNALE SIGNAL (psi)	CV 0.05 ÷ 4.5		CV 6		CV 11		CV 18		CV 27		CV 47		CV 73		CV 105		CV 160		CV 270		CV 370		CV 650	
		cl. IV	cl. VI	cl. IV	cl. VI	cl. IV	cl. VI	cl. IV	cl. VI	cl. IV	cl. VI	cl. IV	cl. VI	cl. IV	cl. VI	cl. IV	cl. VI	cl. IV	cl. VI	cl. IV	cl. VI	cl. IV	cl. VI	cl. IV	cl. VI
		AP23	3÷15	15	21	14	18	9	12	5	8	3	4	2	3	-	-	-	-	-	-	-	-	-	-
6÷18	18		26	16	22	11	17	7	10	4	5	3	4	-	-	-	-	-	-	-	-	-	-	-	-
6÷30	50		60	22	28	16	25	10	15	6	8	4	6	-	-	-	-	-	-	-	-	-	-	-	-
15÷60	70		80	45	60	35	56	27	33	15	17	8	12	-	-	-	-	-	-	-	-	-	-	-	-
AP28	3÷15	31	35	27	30	17	26	8	15	6	9	4	6	-	-	-	-	-	-	-	-	-	-	-	-
	6÷18	40	45	38	40	21	30	13	19	10	12	5	8	-	-	-	-	-	-	-	-	-	-	-	-
	6÷30	55	60	50	55	26	47	23	26	12	16	7	12	-	-	-	-	-	-	-	-	-	-	-	-
	15÷60	99	99	80	90	48	75	40	56	25	38	17	23	-	-	-	-	-	-	-	-	-	-	-	-
AP34 / AP35	3÷15	60	65	60	65	50	55	20	23	12	18	10	16	4	4	2	3	1	1	-	-	-	-	-	-
	6÷18	80	85	80	85	60	65	30	35	15	18	12	15	6	7	4	5	2	3	-	-	-	-	-	-
	6÷30	99	99	99	99	80	85	40	45	20	25	14	16	7	8	5	6	2	3	-	-	-	-	-	-
	15÷60	-	-	-	-	-	-	62	65	36	45	25	29	11	13	8	11	6	6	-	-	-	-	-	-
AP43 / AP44	3÷15	-	-	-	-	-	-	-	-	35	40	24	26	7	8	6	6	4	4	-	-	-	-	-	-
	6÷18	-	-	-	-	-	-	-	-	40	45	26	28	9	10	8	8	5	5	-	-	-	-	-	-
	6÷30	-	-	-	-	-	-	-	-	40	45	26	28	12	12	10	10	6	6	-	-	-	-	-	-
	15÷60	-	-	-	-	-	-	-	-	65	85	40	70	28	37	22	27	15	17	-	-	-	-	-	-
AP45	15÷60	-	-	-	-	-	-	-	-	65	85	40	70	28	37	22	27	15	17	-	-	-	-	-	-
AP46	15÷60	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7	8	5	6	3	4

Metal seat tightness - Class IV : ANSI B16-104

Soft seal - Class VI : ANSI B16-104

The pressure drop values must be used within the body rating limit.

TYPE	diaphragm type - multispring
------	------------------------------

CONTROL SIGNAL	3÷15psi	15÷60psi
	6÷18psi	
	6÷30psi	
MAX AIR SUPPLY PRESSURE	50psi (3,5bar)	87 psi (6 bar)
AMBIENT TEMPERATURE	-20 to +70°C	
ACTUATOR CASING MATERIAL	Carbon Steel Fe410.1	
DIAPHRAGM MATERIAL	NBR70	
YOKE MATERIAL	Integral type carbon steel A216WCB	
PNEUMATIC CONNECTIONS	1/4"NPT-F	
PROTECTIVE COATING	Finish powder coat polyesrer RAL 7032 (*)	

* other on request



Fig.10



Fig.3



Fig.2



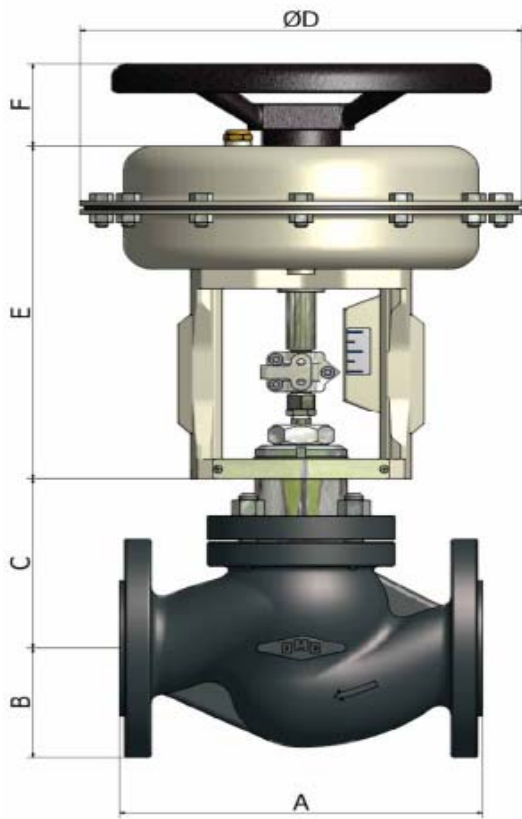
Fig.4

DIRECT ACTION	Air to Close (Fig.1 / Fig.3)
REVERSE ACTION	Air to Open (Fig.2 / Fig.4)
ACCESSORIES	
Alarm contacts	4-20 mA Position feedback
Elettropneumatic positioner	Air filter regulator
Pneumatic positioner	Top mounted handwheel
SMART positioner	Solenoid valves
I/P Converter	Lock-Up pneumatic device

OPTIONS
St. Steel yoke
St. Steel casing
St. Steel bolts & nuts
Off-Shore painting

DIMENSIONS

DN	A	B			C (bonnet)			
		PN16	PN25	PN40	Standard	<i>Finned</i>	<i>Extended</i>	<i>Bellows</i>
DN 15	130	47,5	47,5	47,5	126	163	163	226
DN 20	150	52,5	52,5	52,5	126	163	163	226
DN 25	160	57,5	57,5	57,5	129	157	157	228
DN 32	180	70	70	70	129	157	157	228
DN 40	200	75	75	75	128	185	185	226
DN 50	230	82,5	82,5	82,5	128	185	185	226
DN 65	290	92,5	92,5	92,5	165	255	255	292
DN 80	310	100	100	100	187	260	260	306
DN 100	350	110	117,5	117,5	184	310	310	307
DN 125	400	125	135	135	267	379	379	379
DN 150	480	142,5	150	150	270	382	382	382
DN 200	600	170	180	187,5	292	404	404	404



<i>ACTUATOR (mm)</i>			
<i>TYPE</i>	\varnothing D	E	F
AP23	230	245	110
AP28	275	253	110
AP34 / AP35	335	276	150
AP43 / AP44	430	303	300
AP45	430	393	
AP46	430	425	