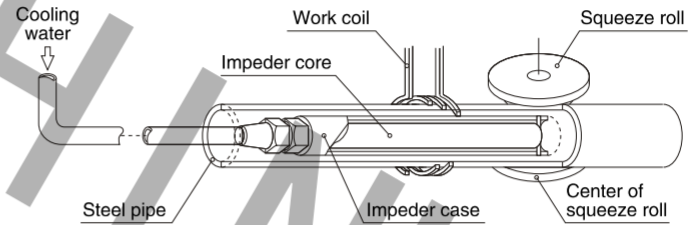


Impeder Core For High Frequency Welding

In high frequency tube welding process, mild steel strip of specific width is passed through several sets of steel rolls. The steel strip is converted into an open seam tubular shape. At this stage, the tubular shape is passed through a high frequency induction coil. The coil works as a primary and the open seam tube acts as one turn secondary. The induced current density is highest at the edges and results into rapid heating of these edges. The subsequent pressure rolls press the open red hot seams together to form a butt weld joint. Ferrite rods kept inside the tube aid the process of welding by improving its efficiency.

The Impeder is constructed of Ferrite material and is an essential accessory for use in high frequency welding of tubes and pipes. We have developed a rugged performance ferrite core material designated R2KW. This material best meets the demanding requirements of high frequency welding. The Impeder lowers the reluctance of the magnetic path, thereby saving energy and improving overall process efficiency. R2KW material cores provide an ideal magnetic path even at high temperatures. High saturation flux combined with high resistance reducing eddy current losses improves mill efficiency. Its high density construction adds the mechanical strength for long life in the severe operating environment in a steel tube mill.



Feature

The R2KW has a very low reluctance. Internal heating can be inhibited during welding, which reduces the saturation magnetic flux density, and the welding process is very efficient.

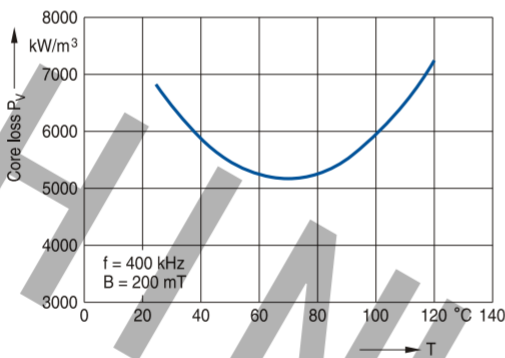
Application

Pipe welding

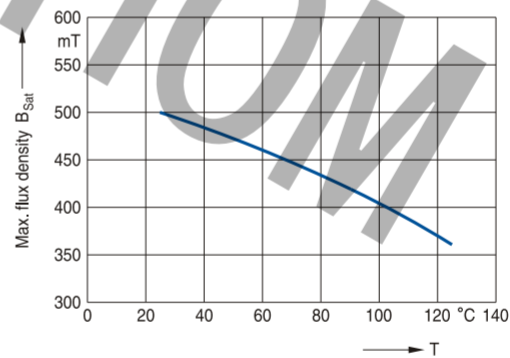
CHARACTERISTICS OF THE MATERIAL R2KW

Initial permeability (μ_i)	2000 $\pm$ 25% (H=0.24A/m, f=100kHz, at 23°C)
Saturation magnetic flux density (Bs)	500mT $\pm$ 10% (H=1194A/m, at 23°C)
Core loss (Pcv)	≤ 10000 kW/m ³ (f=400kHz, B=200mT, at 100°C)
Curie temperature (Tc)	>200°C
Density (d)	4.8 $\times 10^3$ kg/m ³
Resistivity (ρ)	3.0 $\Omega \cdot m$

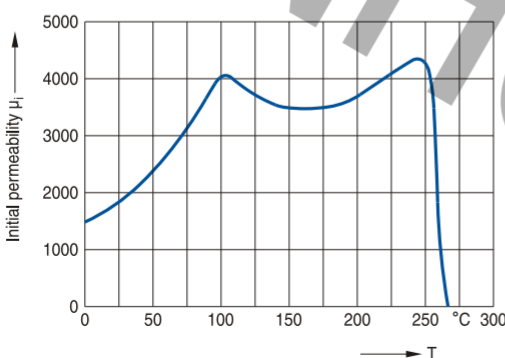
Core loss vs. temperature



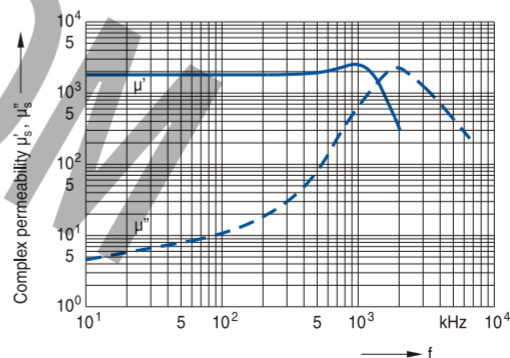
Maximum flux density vs. temperature



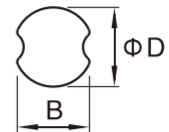
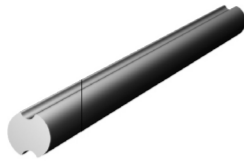
Initial permeability vs. temperature



Complex permeability vs. frequency



Impeder Core For High Frequency Welding



YC TYPE CORES Dimensions

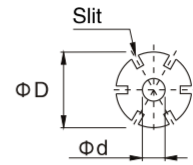
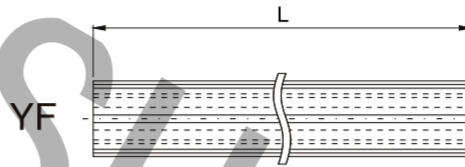
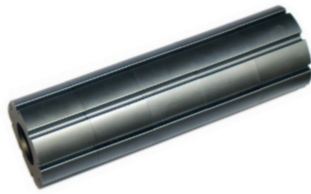
CORES TYPE	ΦD	L	B	CORES TYPE	ΦD	L	B	CORES TYPE	ΦD	L	B
YC5×100	5±0.4	100±5	3.5	YC20×140	20±0.7	140±5	17	YC11×200	11±0.6	200±7	8.5
YC6×100	6±0.4	100±5	4.5	YC22×140	22±0.8	140±5	19	YC12×200	12±0.6	200±7	9
YC8×120	8±0.5	120±5	6	YC24×140	24±0.8	140±5	21	YC13×200	13±0.6	200±7	10
YC8×140	8±0.5	140±5	6	YC25×140	25±0.8	140±5	22	YC14×200	14±0.6	200±7	11
YC10×100	10±0.5	100±5	8	YC28×140	28±0.9	140±5	25	YC15×200	15±0.7	200±7	12
YC10×120	10±0.5	120±5	8	YC30×140	30±0.9	140±5	27	YC16×200	16±0.7	200±7	13
YC10×140	10±0.5	140±5	8	YC32×140	32±1.1	140±5	29	YC17×200	17±0.7	200±7	14
YC13×100	13±0.5	100±5	10	YC35×140	35±1.1	140±5	32	YC18×200	18±0.7	200±7	15
YC13×140	13±0.6	140±5	10	YC6×200	6±0.5	200±7	4	YC20×200	20±0.7	200±7	17
YC12×140	12±0.6	140±5	9	YC7×200	7±0.5	200±7	5	YC21×200	21±0.8	200±7	18
YC14×140	14±0.6	140±5	11.5	YC8×200	8±0.5	200±7	6	YC22×200	22±0.8	200±7	19
YC15×140	15±0.7	140±5	12	YC9×200	9±0.5	200±7	7	YC24×200	24±0.8	200±7	21
YC16×140	16±0.7	140±5	13	YC10×200	10±0.5	200±7	8	YC25×200	25±0.8	200±7	22
YC17×140	17±0.7	140±5	14	YC10×160	10±0.5	160±5	8	YC30×200	30±0.9	200±7	27
YC18×140	18±0.7	140±5	15	YC10×180	10±0.5	180±5	8	YC32×160	32±1.0	200±7	29



YO TYPE CORES Dimensions

CORES TYPE	ΦD	Φd	L	CORES TYPE	ΦD	Φd	L	CORES TYPE	ΦD	Φd	L
YO12×3×140	12±0.6	3±0.5	140±5	YO20×6×200	20±0.7	6±0.7	200±5	YO40×15×120	40±1.5	15±0.7	120±5
YO13×3×140	13±0.6	3±0.5	140±5	YO22×6×200	22±0.8	6±0.7	200±5	YO45×20×160	45±1.5	20±0.8	160±6
YO13.5×3×140	13.5±0.6	3±0.5	140±5	YO24×6×200	24±0.8	6±0.7	200±5	YO50×20×120	50±1.5	20±0.8	120±5
YO14×3×140	14±0.6	3±0.5	140±5	YO25×6×200	25±0.9	6±0.7	200±5	YO60×25×200	60±1.5	25±0.9	200±7
YO15×4×140	15±0.7	4±0.5	140±5	YO28×9×200	28±0.9	9±1.0	200±5	YO60×33×150	60±1.5	33±1.5	150±6
YO16×4×140	16±0.7	4±0.5	140±5	YO30×9×200	30±0.9	9±1.0	200±5	YO80×33×210	80±1.5	33±1.5	210±7
YO17×4×140	17±0.7	4±0.5	140±5	YO32×10×200	32±1.0	10±1.0	200±5	YO100×50×200	100±1.5	50±1.5	200±7
YO18×4×140	18±0.7	4±0.5	140±5	YO35×10×200	35±1.2	10±1.0	200±5				

Impeder Core For High Frequency Welding



YF TYPE CORES Dimensions

CORES TYPE	ΦD	Φd	L	CORES TYPE	ΦD	Φd	L	CORES TYPE	ΦD	Φd	L
YF6X2X200	6 ± 0.3	2 ± 0.3	200 ± 3	YF14X4X200	14 ± 0.4	4 ± 0.3	200 ± 3	YF19X11X200	19 ± 0.6	11 ± 0.4	200 ± 3
YF6X3X200	6 ± 0.3	3 ± 0.3	200 ± 3	YF14X5X200	14 ± 0.4	5 ± 0.3	200 ± 3	YF20X3X200	20 ± 0.6	3 ± 0.3	200 ± 3
YF7X2X200	7 ± 0.3	2 ± 0.3	200 ± 3	YF14X6X200	14 ± 0.4	6 ± 0.3	200 ± 3	YF20X6X200	20 ± 0.6	6 ± 0.3	200 ± 3
YF7X3X200	7 ± 0.3	3 ± 0.3	200 ± 3	YF14X7X200	14 ± 0.4	7 ± 0.4	200 ± 3	YF20X10X200	20 ± 0.6	10 ± 0.4	200 ± 3
YF7X4X200	7 ± 0.3	4 ± 0.3	200 ± 3	YF15X3X200	15 ± 0.5	3 ± 0.3	200 ± 3	YF20X11X200	20 ± 0.6	11 ± 0.4	200 ± 3
YF8X2X200	8 ± 0.3	2 ± 0.3	200 ± 3	YF15X4X200	15 ± 0.5	4 ± 0.3	200 ± 3	YF21X3X200	21 ± 0.6	3 ± 0.3	200 ± 3
YF8X3X200	8 ± 0.3	3 ± 0.3	200 ± 3	YF15X5X200	15 ± 0.5	5 ± 0.3	200 ± 3	YF21X4X200	21 ± 0.6	4 ± 0.3	200 ± 3
YF8X4X200	8 ± 0.3	4 ± 0.3	200 ± 3	YF15X6X200	15 ± 0.5	6 ± 0.3	200 ± 3	YF21X6X200	21 ± 0.6	6 ± 0.3	200 ± 3
YF9X2X200	9 ± 0.4	2 ± 0.3	200 ± 3	YF15X7X200	15 ± 0.5	7 ± 0.4	200 ± 3	YF21X10X200	21 ± 0.6	10 ± 0.4	200 ± 3
YF9X3X200	9 ± 0.4	3 ± 0.3	200 ± 3	YF15X9X200	15 ± 0.5	9 ± 0.4	200 ± 3	YF22X3X200	22 ± 0.7	3 ± 0.3	200 ± 3
YF9X4X200	9 ± 0.4	4 ± 0.3	200 ± 3	YF16X3X200	16 ± 0.5	3 ± 0.3	200 ± 3	YF22X6X200	22 ± 0.7	6 ± 0.3	200 ± 3
YF9X5X200	9 ± 0.4	5 ± 0.3	200 ± 3	YF16X4X200	16 ± 0.5	4 ± 0.3	200 ± 3	YF22X8X200	22 ± 0.7	8 ± 0.4	200 ± 3
YF10X3X200	10 ± 0.4	3 ± 0.3	200 ± 3	YF16X5X200	16 ± 0.5	5 ± 0.3	200 ± 3	YF22X9X200	22 ± 0.7	9 ± 0.4	200 ± 3
YF10X4X200	10 ± 0.4	4 ± 0.3	200 ± 3	YF16X5X200	16 ± 0.5	5 ± 0.3	200 ± 3	YF22X14X200	22 ± 0.7	14 ± 0.5	200 ± 3
YF10X5X200	10 ± 0.4	5 ± 0.3	200 ± 3	YF16X6X200	16 ± 0.5	6 ± 0.4	200 ± 3	YF23X2X200	23 ± 0.7	2 ± 0.2	200 ± 3
YF10X6X200	10 ± 0.4	6 ± 0.3	200 ± 3	YF16X7X200	16 ± 0.5	7 ± 0.4	200 ± 3	YF18.5X11X200	18.5 ± 0.6	11 ± 0.4	200 ± 3
YF11X3X200	11 ± 0.4	3 ± 0.3	200 ± 3	YF16X8X200	16 ± 0.5	8 ± 0.4	200 ± 3	YF20X3X200	20 ± 0.6	3 ± 0.3	200 ± 3
YF11X4X200	11 ± 0.4	4 ± 0.3	200 ± 3	YF17X3X200	17 ± 0.6	3 ± 0.3	200 ± 3	YF20X6X200	20 ± 0.5	6 ± 0.3	200 ± 3
YF11X5X200	11 ± 0.4	5 ± 0.3	200 ± 3	YF17X4X200	17 ± 0.6	4 ± 0.3	200 ± 3	YF21X3X200	21 ± 0.6	3 ± 0.3	200 ± 3
YF12X2X200	12 ± 0.4	2 ± 0.3	200 ± 3	YF17X5X200	17 ± 0.6	5 ± 0.3	200 ± 3	YF21X10X200	21 ± 0.6	10 ± 0.4	200 ± 3
YF12X3X200	12 ± 0.4	3 ± 0.3	200 ± 3	YF17X7X200	17 ± 0.6	7 ± 0.4	200 ± 3	YF21X10.5X200	21 ± 0.6	10.5 ± 0.4	200 ± 3
YF12X5X200	12 ± 0.4	5 ± 0.3	200 ± 3	YF17X8X200	17 ± 0.6	8 ± 0.4	200 ± 3	YF21X13X200	21 ± 0.5	13 ± 0.5	200 ± 3
YF12X6X200	12 ± 0.4	6 ± 0.3	200 ± 3	YF18X3X200	18 ± 0.6	3 ± 0.3	200 ± 3	YF21X14X200	21 ± 0.5	14 ± 0.5	200 ± 3
YF12X7X200	12 ± 0.4	7 ± 0.4	200 ± 3	YF18X5X200	18 ± 0.6	5 ± 0.3	200 ± 3	YF22X3X200	22 ± 0.65	3 ± 0.3	200 ± 3
YF13X2X200	13 ± 0.4	2 ± 0.3	200 ± 3	YF18X6X200	18 ± 0.6	6 ± 0.3	200 ± 3	YF22X6X200	22 ± 0.65	6 ± 0.3	200 ± 3
YF13X3X200	13 ± 0.4	3 ± 0.3	200 ± 3	YF18X8X200	18 ± 0.6	8 ± 0.4	200 ± 3	YF22X10X200	22 ± 0.65	10 ± 0.4	200 ± 3
YF13X4X200	13 ± 0.4	4 ± 0.3	200 ± 3	YF18X9X200	18 ± 0.6	9 ± 0.4	200 ± 3	YF22X11X200	22 ± 0.65	11 ± 0.4	200 ± 3
YF13X5X200	13 ± 0.4	5 ± 0.3	200 ± 3	YF19X3X200	19 ± 0.6	3 ± 0.3	200 ± 3	YF22X14X200	22 ± 0.7	14 ± 0.5	200 ± 3
YF13X6X200	13 ± 0.4	6 ± 0.3	200 ± 3	YF19X6X200	19 ± 0.6	6 ± 0.3	200 ± 3	YF23X3X200	23 ± 0.7	3 ± 0.3	200 ± 3
YF13X7X200	13 ± 0.4	7 ± 0.4	200 ± 3	YF19X8X200	19 ± 0.6	8 ± 0.4	200 ± 3	YF23X6X200	23 ± 0.5	6 ± 0.3	200 ± 3
YF14X3X200	14 ± 0.4	3 ± 0.3	200 ± 3	YF19X9X200	19 ± 0.6	9 ± 0.4	200 ± 3	YF23X11X200	23 ± 0.7	11 ± 0.4	200 ± 3

Impeder Core For High Frequency Welding

YF TYPE CORES Dimensions

CORES TYPE	ΦD	Φd	L	CORES TYPE	ΦD	Φd	L	CORES TYPE	ΦD	Φd	L
YF23x11.5x200	23 ± 0.7	11.5 ± 0.4	200 ± 3	YF32X6X200	32 ± 0.8	6 ± 0.3	200 ± 3	YF44X22X200	44 ± 1.2	22 ± 0.8	200 ± 3
YF23X13X200	23 ± 0.5	13 ± 0.5	200 ± 3	YF32X10X200	32 ± 0.8	10 ± 0.4	200 ± 3	YF45X20X200	45 ± 1.2	20 ± 0.6	200 ± 3
YF24X3X200	24 ± 0.7	3 ± 0.3	200 ± 3	YF32X12X200	32 ± 0.8	12 ± 0.5	200 ± 3	YF46X18X200	46 ± 1.2	18 ± 0.5	200 ± 3
YF24X6X200	24 ± 0.7	6 ± 0.3	200 ± 3	YF32X16X200	32 ± 0.8	16 ± 0.5	200 ± 3	YF16X23X200	46 ± 1.2	23 ± 0.8	200 ± 3
YF24X8X200	24 ± 0.7	8 ± 0.4	200 ± 3	YF33X6X200	33 ± 0.8	6 ± 0.3	200 ± 3	YF48X20X200	48 ± 1.2	20 ± 0.6	200 ± 3
YF24X10X200	24 ± 0.7	10 ± 0.4	200 ± 3	YF33X10X200	33 ± 0.8	10 ± 0.4	200 ± 3	YF48X24X200	48 ± 1.2	24 ± 0.8	200 ± 3
YF24X12X200	24 ± 0.7	12 ± 0.5	200 ± 3	YF33X14X200	33 ± 0.8	14 ± 0.5	200 ± 3	YF50X25X200	50 ± 1.2	25 ± 0.8	200 ± 3
YF24X13X200	24 ± 0.7	13 ± 0.5	200 ± 3	YF33X15X200	33 ± 0.8	15 ± 0.5	200 ± 3	YF51X26X200	51 ± 1.2	26 ± 0.8	200 ± 3
YF25X3X200	25 ± 0.7	3 ± 0.3	200 ± 3	YF34X6X200	34 ± 0.8	6 ± 0.3	200 ± 3	YF54X6X200	54 ± 1.2	6 ± 0.3	200 ± 3
YF25X6X200	25 ± 0.7	6 ± 0.3	200 ± 3	YF34X12X200	34 ± 0.8	12 ± 0.5	200 ± 3	YF55X6X200	55 ± 1.2	6 ± 0.3	200 ± 3
YF25X10X200	25 ± 0.7	10 ± 0.4	200 ± 3	YF34X17X200	34 ± 0.8	17 ± 0.5	200 ± 3	YF55X20X200	55 ± 1.2	20 ± 0.6	200 ± 3
YF25X12X200	25 ± 0.7	12 ± 0.5	200 ± 3	YF34X20X200	34 ± 0.8	20 ± 0.6	200 ± 3	YF55X25X200	55 ± 1.2	25 ± 0.8	200 ± 3
YF26X3X200	26 ± 0.7	3 ± 0.3	200 ± 3	YF35X6X200	35 ± 0.8	6 ± 0.3	200 ± 3	YF55X27X200	55 ± 1.2	27 ± 0.8	200 ± 3
YF26X6X200	26 ± 0.7	6 ± 0.3	200 ± 3	YF35X15X200	35 ± 0.8	15 ± 0.5	200 ± 3	YF56X28X200	56 ± 1.2	28 ± 0.8	200 ± 3
YF26X13X200	26 ± 0.7	13 ± 0.5	200 ± 3	YF35X17X200	35 ± 0.8	17 ± 0.5	200 ± 3	YF57X29X200	57 ± 1.2	29 ± 0.8	200 ± 3
YF26X16X200	26 ± 0.7	16 ± 0.5	200 ± 3	YF36X3X200	36 ± 0.8	3 ± 0.3	200 ± 3	YF58X29X200	58 ± 1.2	29 ± 0.8	200 ± 3
YF27X3X200	27 ± 0.7	3 ± 0.3	200 ± 3	YF36X6X200	36 ± 0.8	6 ± 0.4	200 ± 3	YF60X30X200	60 ± 1.2	30 ± 0.8	200 ± 3
YF27X6X200	27 ± 0.7	6 ± 0.3	200 ± 3	YF36X18X200	36 ± 0.8	18 ± 0.5	200 ± 3	YF62X31X200	62 ± 1.2	31 ± 0.8	200 ± 3
YF27X8X200	27 ± 0.5	8 ± 0.4	200 ± 3	YF37X3X200	37 ± 0.8	3 ± 0.3	200 ± 3	YF65X32X200	65 ± 1.2	32 ± 0.8	200 ± 3
YF27X11X200	27 ± 0.7	11 ± 0.4	200 ± 3	YF37X15X200	37 ± 0.8	15 ± 0.5	200 ± 3	YF70X35X200	70 ± 1.2	35 ± 0.8	200 ± 3
YF27X13X200	27 ± 0.7	13 ± 0.5	200 ± 3	YF37X18X200	37 ± 0.8	18 ± 0.5	200 ± 3	YF73X36X200	73 ± 1.2	36 ± 1.0	200 ± 3
YF27X14X200	27 ± 0.7	14 ± 0.5	200 ± 3	YF38X6X200	38 ± 0.8	6 ± 0.3	200 ± 3	YF75X35X200	75 ± 1.2	35 ± 0.8	200 ± 3
YF28X6X200	28 ± 0.8	6 ± 0.3	200 ± 3	YF38X12X200	38 ± 0.8	12 ± 0.5	200 ± 3	YF80X40X200	80 ± 1.2	40 ± 1.0	200 ± 3
YF28X10X200	28 ± 0.8	10 ± 0.4	200 ± 3	YF38X19X200	38 ± 0.8	19 ± 0.5	200 ± 3	YF85X42X200	85 ± 1.2	42 ± 1.0	200 ± 3
YF28X14X200	28 ± 0.8	14 ± 0.5	200 ± 3	YF39X6X200	39 ± 0.8	6 ± 0.3	200 ± 3	YF85X42X200	85 ± 1.2	42 ± 1.0	200 ± 3
YF29X6X200	29 ± 0.8	6 ± 0.3	200 ± 3	YF39X12X200	39 ± 0.8	12 ± 0.5	200 ± 3	YF90X45X200	90 ± 1.2	45 ± 1.0	200 ± 3
YF29X10X200	29 ± 0.8	10 ± 0.4	200 ± 3	YF39X19X200	39 ± 0.8	19 ± 0.5	200 ± 3	YF95X48X200	95 ± 1.2	48 ± 1.0	200 ± 3
YF29X14X200	29 ± 0.8	14 ± 0.5	200 ± 3	YF39X20X200	39 ± 0.8	20 ± 0.6	200 ± 3	YF100X50X200	100 ± 1.2	50 ± 1.0	200 ± 3
YF30X3X200	30 ± 0.8	3 ± 0.3	200 ± 3	YF40X6X200	40 ± 0.8	6 ± 0.3	200 ± 3	YF102X52X200	102 ± 1.2	52 ± 1.0	200 ± 3
YF30X6X200	30 ± 0.8	6 ± 0.3	200 ± 3	YF40X12X200	40 ± 0.8	12 ± 0.5	200 ± 3				
YF30X10X200	30 ± 0.8	10 ± 0.4	200 ± 3	YF40X20X200	40 ± 1.2	20 ± 0.6	200 ± 3				
YF30X12X200	30 ± 0.8	12 ± 0.5	200 ± 3	YF42X6X200	42 ± 1.2	6 ± 0.3	200 ± 3				
YF30X14X200	30 ± 0.8	14 ± 0.5	200 ± 3	YF42X18X200	42 ± 0.8	18 ± 0.5	200 ± 3				
YF30X15X200	30 ± 0.8	15 ± 0.5	200 ± 3	YF42X20X200	42 ± 1.2	20 ± 0.6	200 ± 3				
YF31X3X200	31 ± 0.8	3 ± 0.3	200 ± 3	YF42X21X200	42 ± 1.2	21 ± 0.8	200 ± 3				
YF31X6X200	31 ± 0.8	6 ± 0.3	200 ± 3	YF43X22X200	43 ± 1.2	22 ± 0.8	200 ± 3				
YF31X10X200	31 ± 0.8	10 ± 0.4	200 ± 3	YF44X6X200	44 ± 1.2	6 ± 0.3	200 ± 3				