

# TUBO RECTANGULAR DE ACERO ASTM A500



El tubo rectangular de acero estructural laminado al caliente (LAC), presenta una soldadura interna con el sistema ERW. Son ampliamente utilizados en el mantenimiento industrial, implementos agrícolas, equipos de transporte, etc.

Especificaciones: ASTM A500, AISI A500

Fácil de soldar, cortar, dar forma y maquinar.  
Longitud 6 metros.

Propiedades Mecánicas	Límite de Fluencia (Mpa) mín.	269
	Resistencia a la Tracción (Mpa) mín.	310
	Elongación Probeta 8"	25.0% mínimo

Tolerancias	
Espesor	+/- 10%
Longitud	+127 / -64

Dimensiones		Espesor	Peso Teórico	
mm	pulg	mm	Kg/m	Kg
20 x 40	3/4" x 1 1/2"	1.5	1.35	8.12
		2	1.70	10.20
20 x 50	3/4" x 2"	2	2.10	12.60
		1.2	1.34	8.04
25 x 50	1" x 2"	1.5	1.65	9.90
		1.8	2.07	12.42
		2	2.26	13.57
		2.5	2.98	17.87
		3	3.35	20.09
40 x 50		2	2.62	15.72
		1.2	1.82	10.92
40 x 60	1 1/2" x 1 3/4"	1.5	2.26	13.56
		2	3.03	18.20
		2.5	3.60	21.60
40 x 80	1 1/2" x 3 3/16"	3	4.25	25.50
		1.5	2.71	16.26
		1.8	3.29	19.76
		2	3.66	21.96
		2.5	4.39	26.34
50 x 70		3	5.19	31.14
		4	6.92	41.52
		2	3.58	21.48
50 x 75	2" x 3"	3	5.37	32.22
		1.8	3.25	19.52
		2.0	3.95	23.68
		2.5	4.88	29.28
		3	5.42	32.54
50 x 100	2" x 4"	4.5	7.98	47.88
		4.7	8.33	50.00
		6	10.85	65.08
		1.8	3.96	23.76
		2	4.50	27.00
		2.5	5.56	33.36
		3	6.85	41.07
50 x 125	2" x 5"	4	8.59	51.54
		4.5	9.90	59.40
		4.7	10.22	61.33
		6	13.20	79.20
		2	5.44	32.64
50 x 150	2" x 6"	2.5	6.80	40.80
		3	8.16	48.96
		2	6.18	37.10
		2.5	7.70	46.19
		3	9.17	55.04
50 x 200	2" x 8"	4	11.73	70.38
		4.5	13.76	82.56
		4.7	14.37	86.23
		6	18.26	109.56
		3	11.75	70.50
75 x 100	3" x 4"	4.5	17.45	104.70
		2	5.44	32.64
		3	8.16	48.96
		4	10.88	65.28
		4.5	12.07	72.42
75 x 125	3" x 5"	6	15.87	95.22
		6	17.96	107.75
		3	10.55	63.30
75 x 150	3" x 6"	3	12.94	77.64
		4.7	20.27	121.64
75 x 200	3" x 8"	3	11.56	69.34
		4.5	17.17	103.02
		4.7	17.00	102.00
		6	21.70	130.20
		5/16"	28.39	170.34
100 x 150	4" x 6"	3	13.91	83.48
		4	18.45	110.72
		4.5	20.70	124.22
		6	26.40	158.40
		8	34.38	206.28
		9.3	40.92	245.52
		4	21.60	129.57
100 x 200	4" x 8"	4.5	24.24	145.43
		6	31.10	186.60
		4	21.15	126.90
100 x 250	4" x 10"	4.5	23.68	142.08
		6	31.10	186.60
		6	35.80	214.80
150x 250	6" x 10"	6	35.80	214.80
150x 300	6" x 12"	4.5	30.75	184.50

\* Equivalencias de conversión son aproximadas.

\* Fotos y datos referenciales. No aceptamos responsabilidad por usos incorrectos o mal interpretaciones de estos datos.



# > YES 45 FS/FI

## Center Set Storefront System

### SYSTEM DESCRIPTION:

YES 45 FS (1-3/4" x 4-1/2") is a center set, flush glazed framing system designed primarily for 1/4" glass or infill panels 1/4" to 3/8" thick. YES 45 FI (2" x 4-1/2") is a center set, flush glazed framing system developed for 1" insulating glass and other types of infill panels of varying thicknesses. Both systems will accommodate YKK AP's hinged mullion, as well as our flexible mullion; these mullions allow more creative freedom where curves and angles become a functional part of the design.

### OPTIONS & FEATURES:

- Outside or Inside Glazed
- Screw Spline and Shear Block Assembly
- Gasket With Stretch-Resistant Cord
- Integral Entrance Door Frames
- Enhanced Water Infiltration Resistance
- Integrates with Model 20D/35D/50D Single and Paired Doors



# > YES 45 FS/FI

## Center Set Storefront System Specifications

### 1.01 SUMMARY

- A. Section Includes: Aluminum Storefront Systems
  - 1. YKK AP Series YES 45 FS/FI Storefront Systems (Monolithic Glazing)
- B. Related Sections:
  - 1. Sealants: Refer to Division 7 Joint Treatment Section for sealant requirements.
  - 2. Glass and Glazing: Refer to Division 8 Glass and Glazing Section for glass and glazing requirements.

### 1.02 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide aluminum storefront systems that comply with performance requirements indicated, as demonstrated by testing manufacturer's assemblies in accordance with test method indicated.
  - 1. Air Infiltration: When tested in accordance with ASTM E 283 at differential static pressure of 6.24 PSF (299 Pa), completed storefront systems shall have maximum allowable infiltration of:
    - a. 0.06 CFM/FT<sup>2</sup> (1.10 m<sup>3</sup>/h-m<sup>2</sup>) for YES 45 FS systems.
    - b. 0.06 CFM/FT<sup>2</sup> (1.10 m<sup>3</sup>/h-m<sup>2</sup>) for YES 45 FI systems.
  - 2. Water Infiltration: No uncontrolled water when tested in accordance with ASTM E 331 at test pressure differential of:
    - a. 10 PSF (479 Pa) for YES 45 FS systems.
    - b. 10 PSF (479 Pa) for YES 45 FI systems.(or when required, field tested in accordance with AAMA 503). Fastener Heads must be seated and sealed against Sill Flashing on any fasteners that penetrate through the Sill Flashing.
  - 3. Wind Loads: Completed storefront system shall withstand wind pressure loads normal to wall plane indicated:
    - a. Exterior Walls:
      - 1) Positive Pressure:
      - 2) Negative Pressure:
    - b. Interior Walls (Pressure Acting in Either Direction):
  - 4. Deflection: Maximum allowable deflection in any member when tested in accordance with ASTM E 330 with allowable stress in accordance with AA Specifications for Aluminum Structures.
    - a. Without Horizontals: L/175 or 3/4" (19.1mm) maximum.
    - b. With Horizontals: L/175 or L/240 + 1/4" (6.4mm) for spans greater than 13'-6" (4.1m) but less than 40'-0" (12.2m).
  - 5. Thermal Movement: Provide for thermal movement caused by 180 degrees F (82.2 degrees C.) surface temperature, without causing buckling stresses on glass, joint seal failure, undue stress on structural elements, damaging loads on fasteners, reduction of performance, or detrimental effects.
  - 6. Thermal Performance: When tested in accordance with AAMA 1503.1 and NFRC 100:
    - a. Condensation Resistance Factor (CRF): A minimum of 44 for YES 45 FI systems.
    - b. Thermal Transmittance U Value: 0.51 BTU/HR/FT<sup>2</sup>/°F or less for YES 45 FI systems.

Note: Thermal Performance for the glazed system as a whole will be affected by the characteristics of the glass specified.

### 2.01 MANUFACTURERS

- A. Acceptable Manufacturers: YKK AP America Inc.
  - 1. Storefront System: YKK AP YES 45 FS/FI Storefront Systems.
- B. Storefront Framing System:
  - 1. Description: Center rabbet, exterior flush glazed; jambs and vertical mullions continuous; head, sill, intermediate horizontal attached by screw spline joinery.
  - 2. Components: Manufacturer's standard extruded aluminum expansion mullions, 0–15 degree hinged mullions, 90 degree corner posts, flexible corner posts, three way corner post, 93–170 degree flexible corner posts, entrance door framing, and indicated shapes.

### 2.02 MATERIALS

- A. Extrusions: ASTM B 221 (ASTM B 221M), 6063-T5 Aluminum Alloy.

### 2.03 ACCESSORIES

- A. Manufacturer's Standard Accessories:
  - 1. Fasteners: Zinc plated steel concealed fasteners; Hardened aluminum alloys or AISI 300 series stainless steel exposed fasteners.
  - 2. Glazing: Setting blocks, edge blocks, and spacers in accordance with ASTM C 864, shore durometer hardness as recommended by manufacturer; Glazing gaskets in accordance with ASTM C 864.
  - 3. 0.050 Aluminum Sill Flashing End Dams must have 3 point attachment.

### 2.06 FINISHES

- A. Anodic Coating: Electrolytic color coating followed by an organic seal applied in accordance with the requirements of AAMA 612.
- B. High Performance Organic Coating Finish: Type Factory applied two-coat 70% Kynar resin by Arkema or 70% Hylar resin by Solvay Solexis, fluoropolymer based coating system, Polyvinylidene Fluoride (PVF-2), applied in accordance with YKK AP procedures and meeting AAMA 2605 specifications.

For additional information on architectural aluminum products offered by YKK AP America Inc. visit our web site at [www.ykkap.com](http://www.ykkap.com).