



KFS FRAMEMAKER 1220**G3** TECHNICAL SPECIFICATION



Version 2026.2

 **SCOTTSDALE**
THE TRUSTED STEEL-FRAMING PARTNER

DISCLOSURES

The SCOTTSDALE CONSTRUCTION SYSTEMS mission is to take care of its customers by being the safest, highest quality, lowest cost, most productive and most profitable load bearing light gauge steel framing products company in the world.

This production quality assurance manual collects all the current practices, methods, tools and organization that SCOTTSDALE CONSTRUCTION SYSTEMS utilizes to ensure the quality of its products. These elements together with this manual constitute SCOTTSDALE CONSTRUCTION SYSTEMS Production Quality Assurance System for all of its manufacturing facilities. The information compiled here will be helpful for the purposes of training, audits, internal and external reviews.

The contents of this manual will be reviewed annually and updated as required by the Industrial Engineering function within the manufacturing organization for SCOTTSDALE CONSTRUCTION SYSTEMS, to assure accuracy and completeness of the information.

KFS FRAMEMAKER 1220G3 TECHNICAL SPECIFICATION

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KFS FRAMEMAKER 1220G3

TECHNICAL SPECIFICATION

The KFS Framemaker 1220G3 is an automated, multi-profile roll forming system for light-gauge steel and cold-formed steel framing, featuring automatic servo-controlled profile changes and infinite profile adjustability within the specified dimensional ranges. It combines stud-and-track production, panelized wall and floor fabrication, and truss-member processing, with optional Z-section capability for purlins and girts.



Figure 1 KFS Framemaker 1220G3 and decoiler in a light-gauge steel framing shop

1. Forming Capacity

Parameter	Specification
Material thickness	0.84–2.70 mm (0.033–0.106 in.); nominal 20–12 Ga.
Stud and track web depth	89–305 mm (3.50–12.00 in.)
Flange width	41–89 mm (1.63–3.50 in.)
Maximum flange lip return	25 mm (1.00 in.)

Parameter	Specification
Maximum track flange width	89 mm (3.50 in.)
Profile adjustment	Infinitely adjustable within the stated dimensional ranges
Forming stations	19
Profile-size changeover	Automatic control-system positioning with servo-controlled depth adjustment
Profile-size changeover motor power	1.25 kW (1.7 hp) total

Metric and imperial equivalents are rounded. Specified thickness governs material selection. Gauge designations follow the standard SFIA/SSMA/CSSBI designations. Permissible thickness, strength, geometry, and tooling combinations must be considered together.

2. Material Capability and Standards

Parameter	Specification
Yield strength	230–550 MPa (33–80 ksi), subject to the thickness limits below
Tensile strength	350–620 MPa (51–90 ksi)
Feedstock	Slit steel coil suitable for cold forming and the selected fabrication operations

Permissible material thickness depends on yield strength:

Material yield strength	Permissible thickness
Below 345 MPa (50 ksi)	Full machine thickness range: 0.84–2.70 mm (0.033–0.106 in.), nominal 20–12 Ga.
415 MPa (60 ksi) and under	0.84–1.90 mm (0.033–0.075 in.), nominal 20–14 Ga.
550 MPa (80 ksi) and under	0.84–1.50 mm (0.033–0.059 in.), nominal 20–16 Ga.

Material standards relevant to coil procurement include:

Standard	Material covered
ASTM A1003/A1003M	Coated steel sheet specifically for cold-formed framing members
ASTM A653/A653M	Hot-dip zinc-coated and zinc-iron alloy-coated steel sheet
ASTM A792/A792M	Hot-dip 55% aluminum-zinc alloy-coated steel sheet
ASTM A875/A875M	Hot-dip zinc–5% aluminum alloy-coated steel sheet
ASTM A1046/A1046M	Hot-dip zinc-aluminum-magnesium alloy-coated steel sheet
ASTM A1008/A1008M	Cold-rolled steel sheet; protective coating requirements must be addressed separately
EN 10346	Continuously hot-dip coated steel flat products for cold forming
AS 1397	Continuously hot-dip metallic-coated steel sheet and strip

3. Production Performance

Parameter	Specification
Maximum uninterrupted forming speed	40 m/min (131 ft/min)
Hourly equivalent	2,400 m/hr (7,874 ft/hr)
Estimated effective production speed	6.7–16 m/min (22–52.5 ft/min)
Estimated hourly effective output	400–960 m/hr (1,312–3,150 ft/hr)

Maximum forming speed excludes interruptions for fabrication operations. Effective output depends on member length, material, profile geometry, and the number and sequence of punching, notching, swaging, dimpling, and cutting operations.

4. Production Modes

Mode	Fabrication method	Typical use
Panelizer Mode	C-to-C fabrication: Studs and track members use the same nominal C-section and coil width. Local lip cutting provides connection clearance, and incoming stud ends are swaged to nest within the track member. Members can be produced in panel sequence without changing coils for the corresponding studs and tracks.	Project-based wall-panel fabrication and assembly as members are produced
Hybrid Mode	C-to-U fabrication: Conventional lipped C-studs and unlipped U-track are produced in separate batches using their respective coil widths. Members can be supplied separately or combined afterward into panels.	Stud-and-track supply, with panelization capability



Figure 2 The Panelizer and the Hybrid Mode Methods of LGS Fabrication

5. Forming, Feeding, and Profile Control

- Multi-profile roll-forming cage with heavy-duty powertrain,
- Coil feeding and leveling system,
- Anti-jam strip guiding,
- Automatic profile-size positioning through the built-in production controls,

- Two manually adjustable final shape-control assemblies, with two rollers per assembly, for profile straightening and correction of flare, bow, and curvature,
- Hardened forming rollers rated HRC 58–60,
- Precision-ground roller shafts rated HRC 28–32, and
- NTN bearings.

6. Fabrication and Tooling

The KFS Framemaker 1220G3 includes 15 standard punch and special-tool stations, hydraulic fabrication tooling, and an automatic post-forming guillotine shear. Over 30 additional optional features and toolings are available as per Scottsdale's SM2 KFS and KFD Framemaker Inline Punch Tool Catalogue. The system delivers a ± 0.05 in. (± 0.039 in.) accuracy in dimensional placement of all member process/punch operations on a roll formed member.

Tooling or function	Capability
Universal exit shear	Post-forming hydraulic cutoff with a single-assembly universal shearing toolkit
Stud flange dimpling	Stud connection preparation
Track flange dimpling	Track connection preparation
Standard web service opening	38×76 mm (1.50×3.00 in.)
Stiffened round web opening	5 in. dia. (127 mm)
Stiffened obround web opening	203 × 305 mm (8 × 12 in.)
Deflection-track slotting	6 × 38 mm (0.25 × 1.50 in.) slots for deflection-track fabrication
Adjustable rectangular punch / web notch with flange fold-out	Adjustable web punching and notching with flange fold-out for connection and assembly preparation
End swaging	Member-end reduction for nesting connections
Dual connection-tab punch	Formed connection tabs
Lip cutting	Local return-lip removal for member intersections
Truss web-end chamfer	Waste-minimizing end preparation for truss web connections
Flange notching	Flange clearance at member intersections
Bolt, anchor-rod, and hold-down hole	21-mm (13/16 in.) nominal diameter
Strong-axis truss index hole	Connection indexing for strong-axis truss fabrication
Telescoping and box-column stud functionality	FrameExtend24 functionality
Optional Z-section tooling	Purlin and girt fabrication with adjustable flange lip angle and short-slot punches for nominal 12.7-mm (1/2-in.) connection bolts; see Section 7
Additional optional punches and tooling	Additional fabrication functions according to the selected tooling package

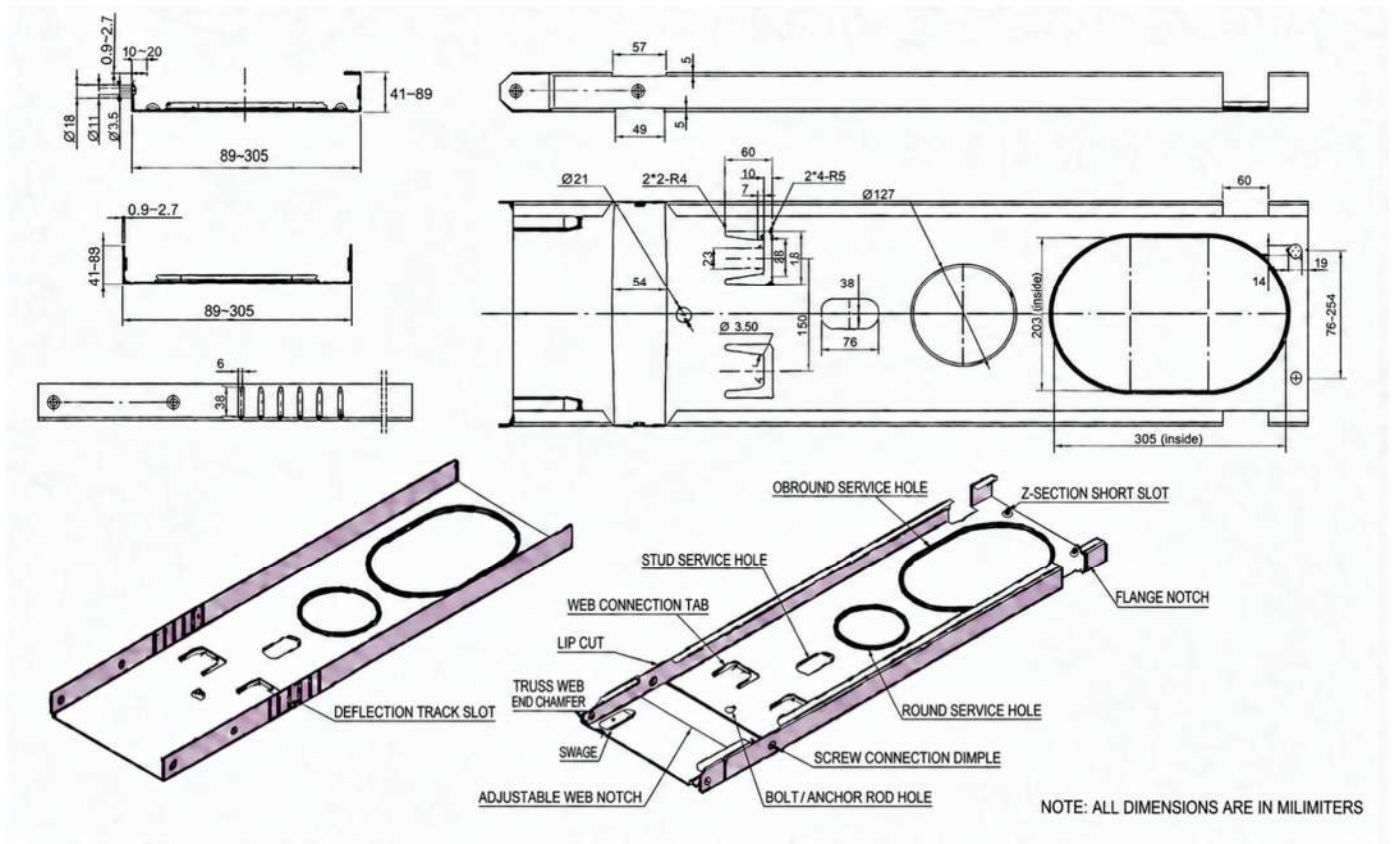


Figure 3 KFS Framemaker 1220G3 tooling diagram

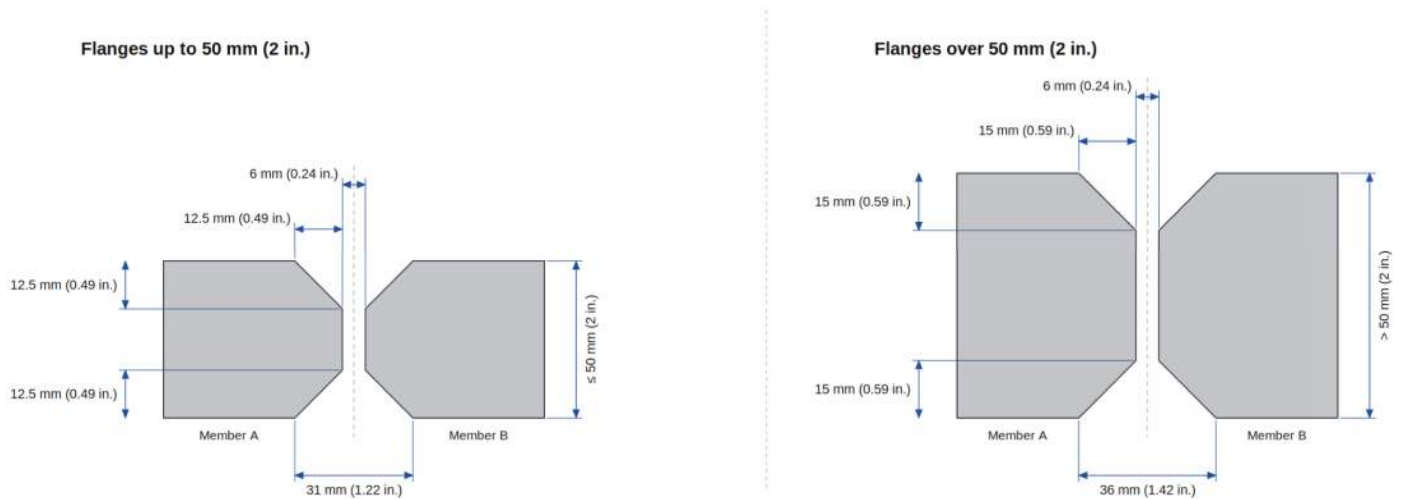


Figure 4 Truss web-end chamfer cut geometry between consecutive members

The tooling package supports in-line trusses, strong-axis trusses, Keymark KeyTruss trusses, panelized walls, panelized and bulk non-load bearing framing, and panelized floor cassettes.

Truss web-end chamfer tooling supports web-to-stud-chord connections incorporating lip clearance and swaged web members entering track of the same nominal section size.

Opening size and location must suit the member depth, required edge clearances, connection locations, and structural design. The largest opening is not suitable for every profile in the machine's range.

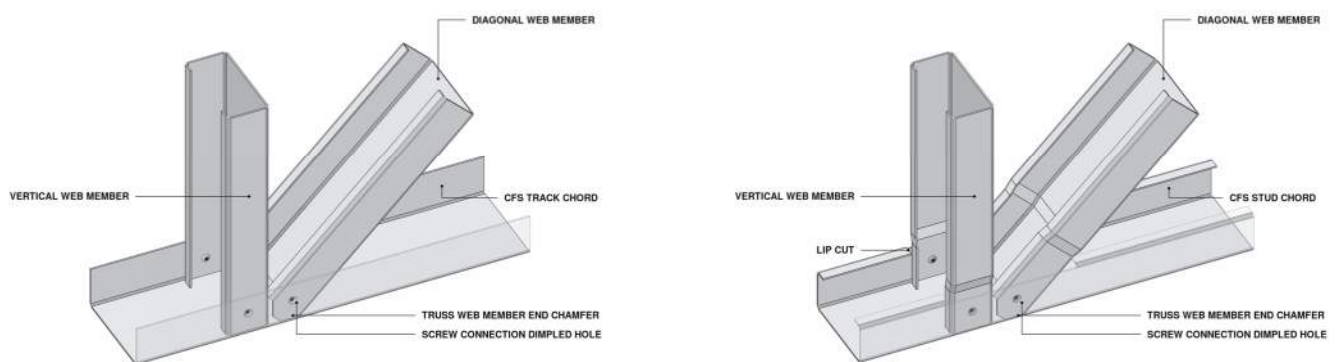


Figure 5 Howe truss panel-point connections showing chamfered web members

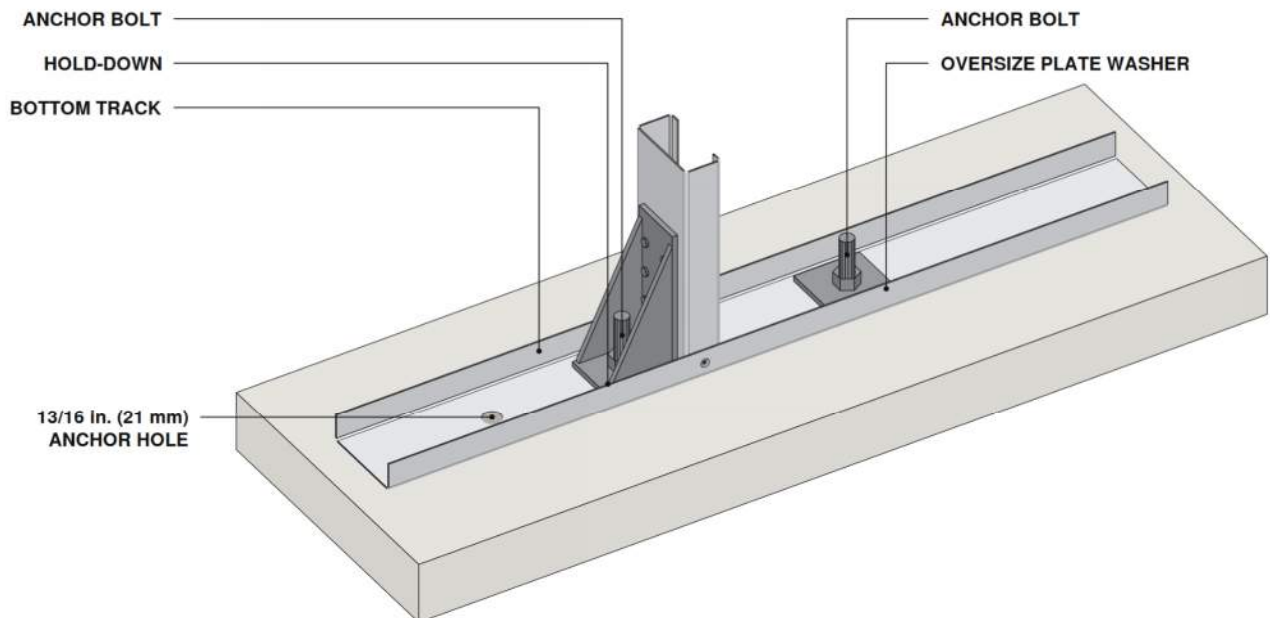


Figure 6 Bottom-track anchor holes serving a hold-down and an anchor bolt connection

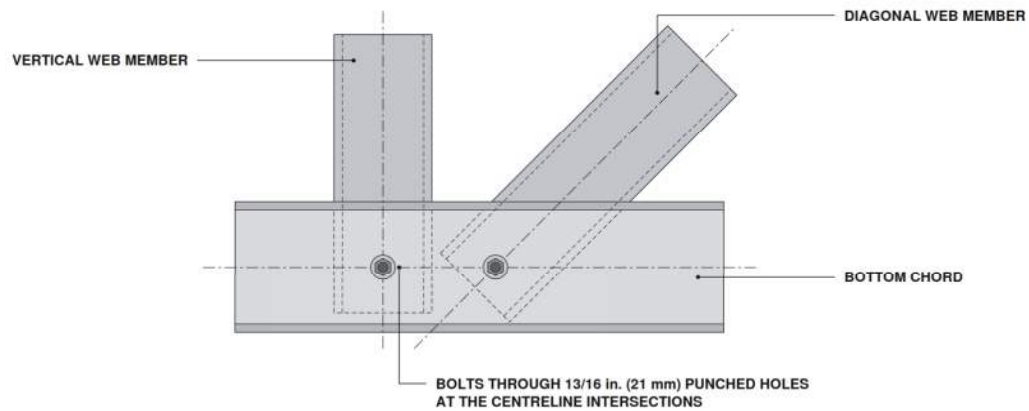


Figure 7 Strong-axis truss connection with bolted vertical and diagonal web members

7. Optional Z-Section Purlin and Girt Capability

Parameter	Specification
Z-section web depth	119–305 mm (4.7–12.0 in.)
Flange width	51–89 mm (2.0–3.5 in.)
Lip return	13–19 mm (1/2–3/4 in.)
Lip angle	90° or 45°
Nesting capability	Unequal flange widths for nested Z-sections
Connection slots	19 × 16 mm (3/4 × 5/8 in.), length × height
Intended connection-bolt diameter	12.7 mm (1/2 in.) nominal
Slot-pattern gauge adjustment	76–254 mm (3–10 in.), servo controlled and capable of being driven by the design file

The short-slot punches are only supplied with the optional Z-section girt/purlin functionality.

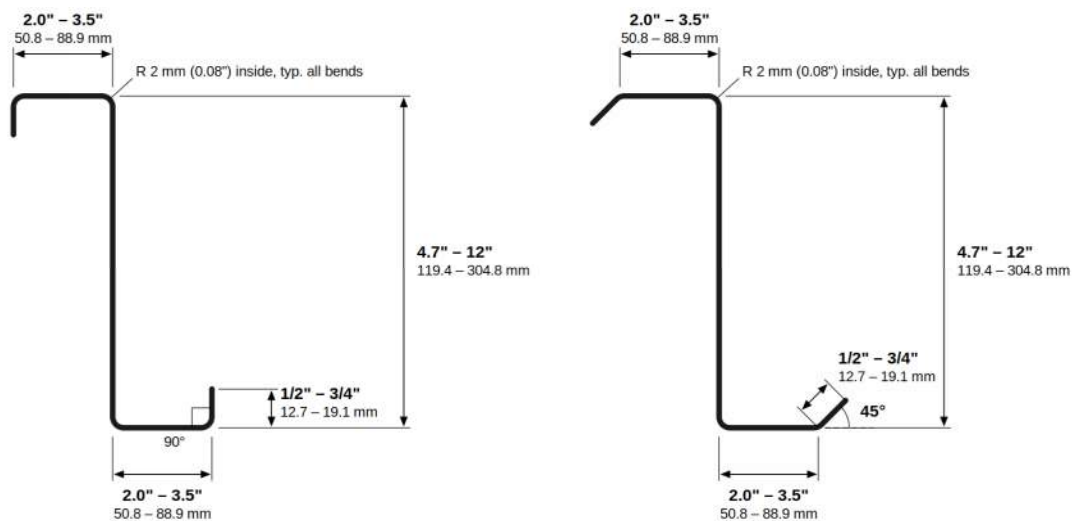


Figure 8 Z-section profiles with 90° and 45° lips

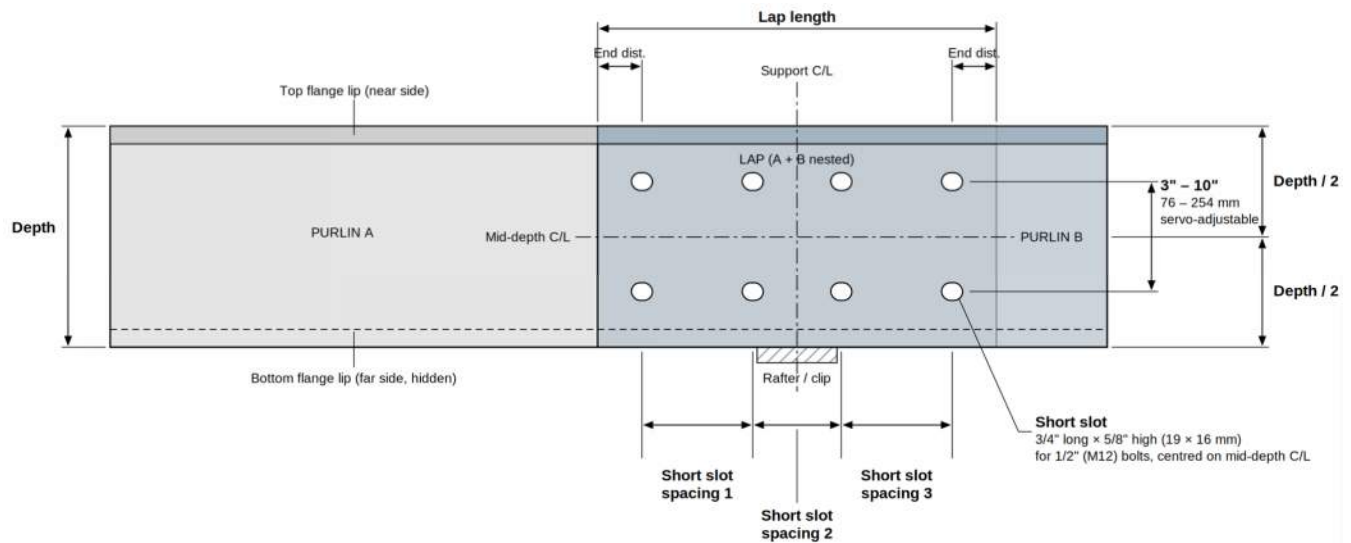


Figure 9 Z-purlin lap at support with connection-slot layout and servo-adjustable gauge

8. Hydraulic System

Parameter	Specification
Hydraulic power-unit motor	15 kW (20.1 hp)
Reservoir capacity	200 L (52.8 US gal)
Hydraulic valves	Yuken solenoid valves
Material stabilization at punching section	Four strip clamping/leveling devices
Cutoff system	Automatic post-forming hydraulic guillotine shear
Shear-blade arrangement	Three blades
Shear-blade hardness	HRC 58–60

9. Built-In Production Controls and Software

The built-in native production control system receives and executes machine-production information from compatible software workflows, including ScotSteel through ScotRF, supported third-party integrations, or a properly structured CSV production database. Controls coordinate profile sizing, material feeding and leveling, roll forming, punching, notching, swaging, cutting, printing, and conveying according to the production data. Control functions include adjustable production speed, manual length and punching-program entry, and display of production information and operating status.

Supported software workflows include:

- ScotSteel through ScotRF,
- Vertex BD,
- StrucSoft MWF,
- FrameBuilder-MRD,
- Autodesk Revit,

- Tekla,
- SketchFramer,
- SketchUp,
- Keymark (KeyTruss), and
- Metal Building Software (MBS).

Third-party workflows use the applicable production-data interface or export process. The system provides a complementary Platinum license to **ScotSteel** Software Suite for the life of the machine ownership with 24/7 support. Other industry software system integrations listed may entail fees from the developers of each particular software. Other related software integrations may be possible.

10. Member Identification

Dual-head inkjet printing enables simultaneous identification on both flanges of the formed member. Either printhead can also operate independently.

Printing surfaces must be sufficiently clean and compatible with the selected ink. Oil-coated feedstock may require surface preparation to achieve reliable adhesion.

11. Hydraulic Powered Decoiler

Parameter	Specification
Maximum coil capacity	5,000 kg (11,000 lb nominal)
Decoiler weight	1,000 kg (2,205 lb)
Motor output	5.5 kW (7.4 hp)
Electrical supply	Separate three-phase supply; see Section 12
Feed control	VFD-controlled powered feed with automatic speed control
Coil stabilization	Side-mounted coil-stabilizing plate
Controls	Self-contained PLC control system
Line compatibility	Operation with the KFS Framemaker 1220G3 or other compatible roll-forming lines
Maximum coil outside diameter	800 mm (31.5 in.)

Coil slit widths may be determined using Scottsdale's free online **ScotCalc** CFS Member Calculator. For standard SSMA/SFIA/CSSBI member sizes, the user can also consult Scottsdale's SM2 Steel Coil Ordering Information. While the decoiler may be decoupled from the KFS Framemaker 1220G3 roll former for use with other roll former systems, Scottsdale only guarantees the compatibility of the decoiler with its KFS Framemaker, KFD Framemaker, Scotpanel, and Scotttruss roll forming systems.

12. Electrical Supply

The KFS Framemaker 1220G3 roll former and decoiler require separate three-phase electrical supplies.

Parameter	Specification
Facility supply voltage	380 V, 400 V, or 480 V, three-phase
Supply frequency	50 or 60 Hz, configured for the destination market
North American configuration	480-V facility supply with 460-V-rated motors

Additional powertrain configurations are available for major global electrical standards. Phase converters and step-up or step-down transformers are available from Scottsdale at an additional charge.

Motor	Rated power
Main forming motor	25 kW (33.5 hp)
Hydraulic power-unit motor	15 kW (20.1 hp)
Profile-size changeover motors	1.25 kW (1.7 hp) total
Decoiler motor	5.5 kW (7.4 hp)

Three-phase facility supply	Estimated peak operating current	Calculated breaker-sizing target*
380 V	93 A	116 A
400 V	88 A	110 A
480 V	73 A	92 A

Three-phase facility supply	Estimated peak operating current	Calculated breaker-sizing target*
380 V	12 A	15 A
400 V	12 A	15 A
480 V	10 A	12 A

*Calculated targets include a 25% design allowance above estimated operating current; they are not standard breaker ratings or an NEC-prescribed sizing rule. Final breaker selection and trip settings shall comply with the locally adopted NEC, including Article 430 requirements for motor branch-circuit and feeder protection under Sections 430.52 and 430.62, as applicable, and the supplied equipment's installation requirements.

13. Safety and Shutdown Systems

Three-level safety shutdown comprises:

1. **SICK infrared perimeter protection:** Four sensor posts protect the designated production-line perimeter; interruption of the protected light field initiates machine shutdown.
2. **Single-button safety shutdown:** An additional operator-actuated safety-stop function.
3. **Emergency-stop system:** Four strategically positioned emergency-stop buttons.

Additional protective functions include deliberate start/restart activation, hazard-location warning markings, and internal monitoring for coil slip, material runout, and potential collisions. The three-level description identifies the supplied shutdown functions; it is not a claim of a particular certified safety category or performance level.

14. Equipment Weights

Equipment	Weight
KFS Framemaker 1220G3 roll former	14,000 kg (30,865 lb)
Decoiler	1,000 kg (2,205 lb)
Combined roll former and decoiler	15,000 kg (33,070 lb)

15. Factory Equipment Layout

The following diagrams show the KFS Framemaker 1220G3 equipment dimensions, production-line arrangement, and operating clearances. Consult with Scottsdale’s installation and onboarding team regarding any factory set-up or equipment layout concerns. The run-off roller tables can be supplied at an additional charge as 600 mm (2’-0”) long wide, and either 3000 or 6000 mm (10’-0” or 20’-0”) long.

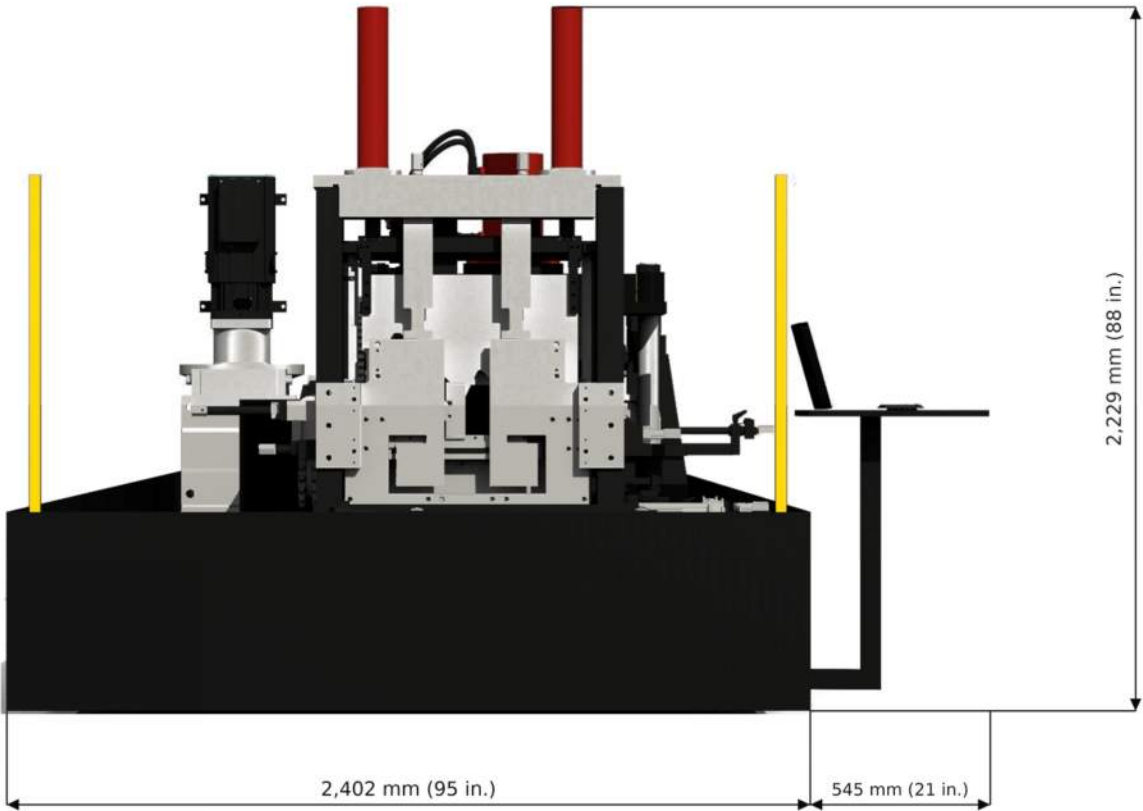


Figure 11 KFS Framemaker 1220G3 end view

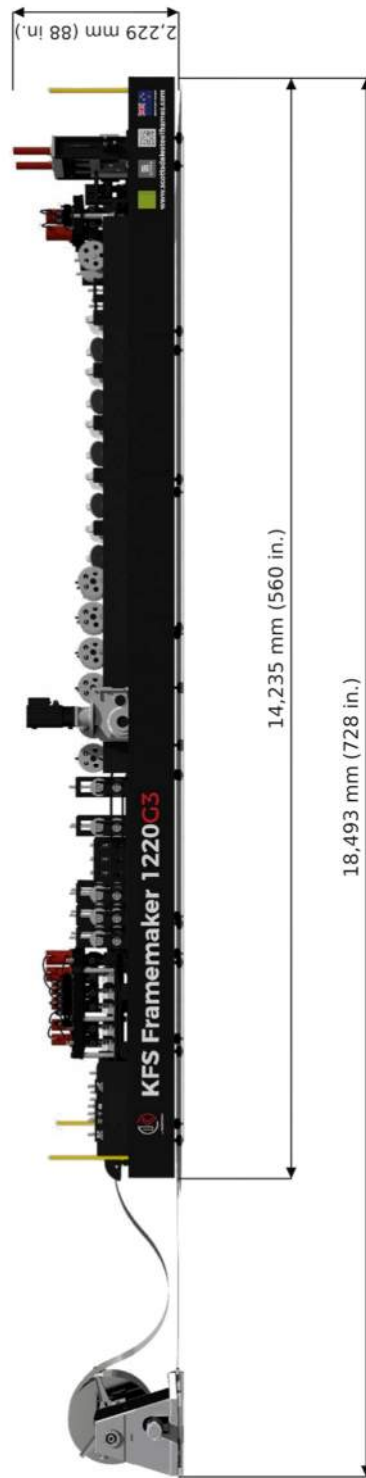


Figure 12 KFS Framemaker 1220G3 side view

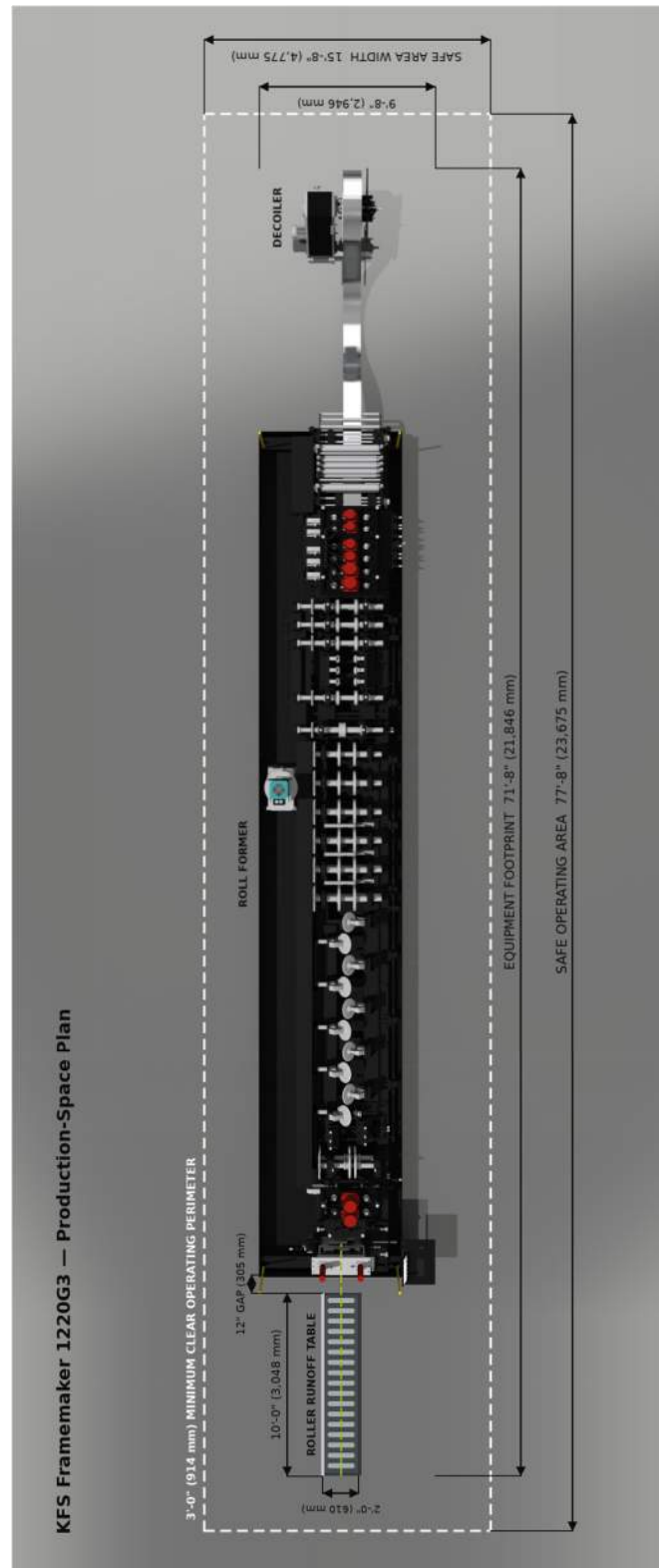


Figure 13 KFS Framemaker 1220G3 production-space plan view with recommended safe perimeter



Figure 14 KFS Framemaker 1220G3 inside a large framing factory

16. Included Equipment and Support

- KFS Framemaker 1220G3 with the specified forming and fabrication systems,
- Hydraulic powered decoiler and coil-stabilizing plate,
- Coil feeding, leveling, and strip-guiding equipment,
- Hydraulic punching and cutoff systems,
- Built-in production control system,
- Premium control laptop: Lenovo Legion Pro 7i Gen 10 Intel, 16-in. (40.6-cm) display, with NVIDIA GeForce RTX 5080 graphics, preloaded with the machine control system and ScotSteel, and capable of running Autodesk Revit,
- Dual-head inkjet printer,
- Specified perimeter protection and shutdown controls,
- ScotSteel Suite Platinum license, subject to the applicable license terms,
- Two-year warranty, subject to the applicable warranty terms, and
- Two-year maintenance and spare-parts package.

The spare-parts package includes assorted bearings; hydraulic components; electrical relays; encoders, switches, and counting components; drive-chain components; linear-guide components; die and tooling springs; cutting and tooling wear components; general fasteners, washers, retaining rings, and locating pins; equipment-support pads; adjustment and maintenance tools; and a dedicated toolbox. Package composition reflects the selected configuration and recommended maintenance under normal operating

conditions and for a duration of two years. Quantities, part numbers, and individual component sizes are enclosed with each of the purchased KFS 1220G3 systems.

17. Typical Applications

Stud-and-track supply; offsite and modular construction; panelized walls and floor cassettes; single-family and multifamily residential construction; hospitality; agricultural buildings; long-span trusses; and commercial non-load-bearing interior walls and ceilings. The application range includes framing for mid-rise construction up to 12 stories, subject to project-specific structural engineering, loading, configuration, and applicable building requirements.



Figure 14 SFIA Stud and track supply using KFS Framemaker 1220G3



Figure 15 Single-family home construction using KFS Framemaker 1220G3



Figure 16 Multi-family construction using KFS Framemaker 1220G3

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