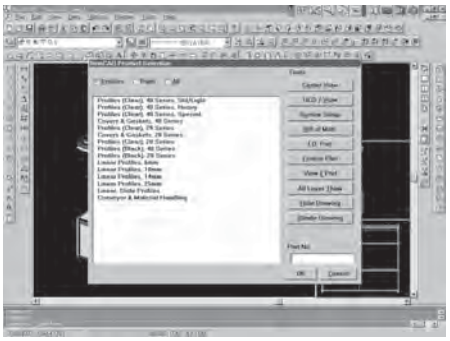
Services and Tools

Design Software

ProfileCAD 2000

1



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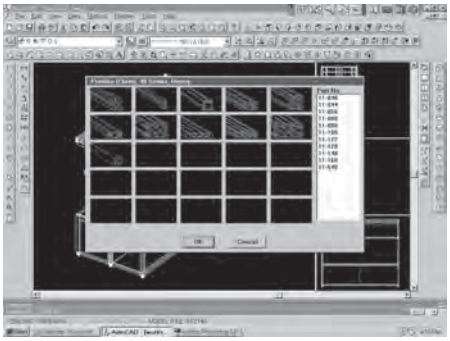

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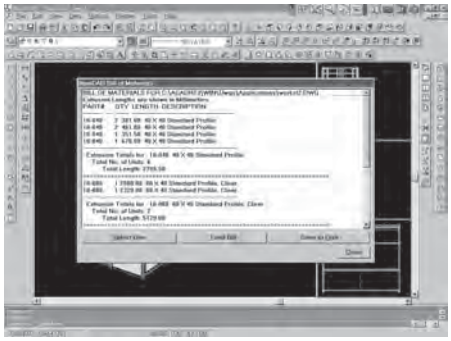

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1 ProfileCAD 2000 is easily installed on a PC platform running AutoCAD Rel 14 or 2000
2 Main menu for selection of components for model design
3 One of the sub menus of ProfileCAD 2000 showing a selection of profiles available
4 Pull down menu highlighting bill of materials command for accurate automatic BOM

ProfileCAD 2000 software consists of a library of profiles and accessories to assist engineers in creating 3D designs for any IPS construction system application. Created for use in AutoCAD R14 and 2000 environments, ProfileCAD 2000 provides for direct insertion of profiles and components, thus saving valuable engineering time. Proven for 10 years in thousands of applications, previously named ItemCAD.

ProfileCAD 2000 features:

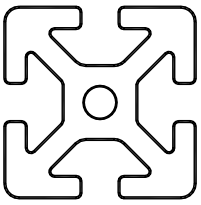
- Menu driven user-friendly interface.
- 3D design made easy; specify insertion point, length of profile and orientation.
- Extrusions and accessories (3D surfaces or 3D solids) ”snap” into place and are easy to manipulate.
- Configurator for screens and panels.
- Bill of material created with a keystroke.
- Metric and English units of measure.

System Requirements
486 Processor or better, AutoCAD Rel 14 or 2000, 30 MB of hard drive space.

(Does not support AutoCAD LT)

ProfileCAD 2000 software is available on IPS CD and can also be downloaded free from the internet www.industrialprofile.com

Endviews Library
DWG and DXF Formats

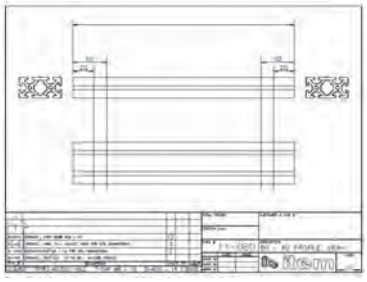


Application
Complete library of our profile cross sections in DXF format for import into any CAD software. Choice of Metric or English scales allow for any type of drawing situation. 2D Profiles & Parts Library has orthographic views of most IPS parts and endviews of profiles in DWG format for AutoCAD R12 or higher.

Technical Data
Drawing files require AutoCAD R12 or higher

Endviews Library is available on IPS CD and can also be downloaded free from www.industrialprofile.com

Cut Sheet Library



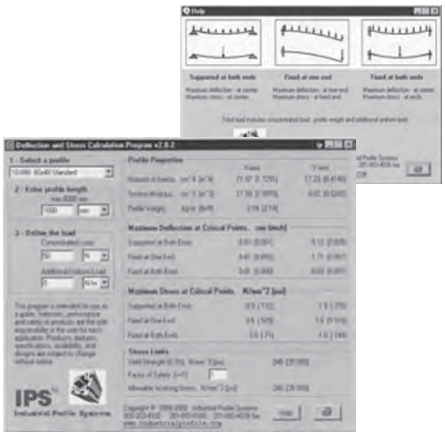
Application
Individual cut sheets for our profiles for use in manufacturing and machining. These files are in DWG format for AutoCAD R12 or higher.

Technical Data
3 1/2" Disk
Drawing files require AutoCAD R12 or higher

Cut Sheet Library is available on IPS CD and can also be downloaded free from www.industrialprofile.com

5

Deflection Calculation



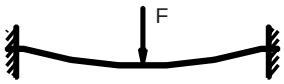
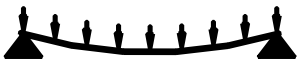
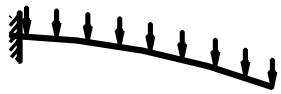
Application

Stand-alone program allows to calculate deflection and stress of IPS aluminum profiles based on profile selection, length and load (evenly distributed and/or concentrated at the critical point). Three cases for the profile attachment are calculated: supported at both ends, fixed at one end, fixed at both ends. Metric or English units of measure can be used to enter profile length and load. Calculated deflection given in both millimeters and inches. Stress values are given in both N/mm^2 and psi.

System requirements: Windows 9x, Windows NT 3.0 or higher, 133MHz, 16MB RAM.

Deflection Program can be downloaded free from www.industrialprofile.com

Formulas for calculating deflection at critical points

Supported at both ends	Fixed at one end	Fixed at both ends
		
$f = \frac{F * L^3}{48\ E * I * 10^4}$	$f = \frac{F * L^3}{3\ E * I * 10^4}$	$f = \frac{F * L^3}{192\ E * I * 10^4}$
Total Load F 	*Total Load F* 	*Total Load F* 
$f = \frac{5}{384} * \frac{F\ell^3}{E * I * 10^4}$	$f = \frac{F * L^3}{8\ E * I * 10^4}$	$f = \frac{F * L^3}{384\ E * I * 10^4}$

In the formulas:
f = deflection in mm
F= load in N
L= free profile length in mm
E= Modulus of Elasticity in N/mm^2
E_{Al}= 70,000 N/mm^2
I= Moment of inertia in cm^4

Example
Find the deflection for the following conditions:
80x40 Standard Profile (10-080), upright
I_X = 71.97 cm^4
m = 3.18 kg/m
L = 1000 mm
F = 50 N - concentrated load
No additional load other than profile weight

Calculate Profile weight (uniform load)
$F_U = m * L * g = (3.18 * 10^{-3}) * 1000 * 9.81 = 31.2$ N

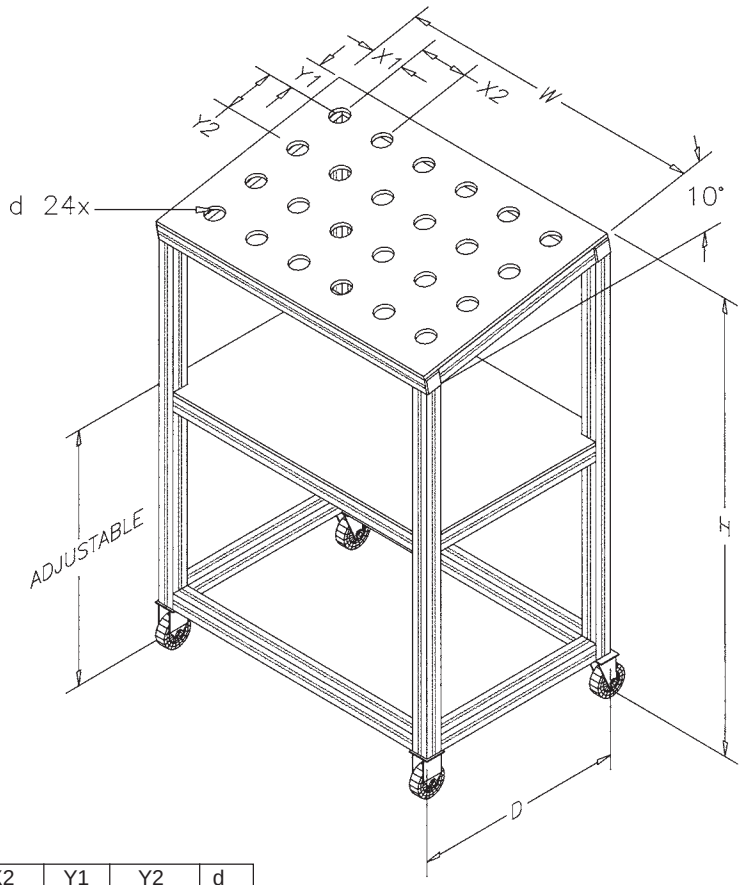
Total deflection $f_{TOTAL} = f_{CONCENTRATED} + f_{UNIFORM}$

Supported at both ends:
$f = 0.021 + 0.008 \approx 0.03$mm
Fixed at one end:
$f = 0.331 + 0.077 \approx 0.041$mm
Fixed at both ends:
$f = 0.005 + 0.002 \approx 0.01$ mm

5

Tool Cart

Tool Cart



	X1	X2	Y1	Y2	d
mm	80	5x120	80	3x120	45

Standard cart 760mm x 520mm x 1120mm (W x D x H) and hole pattern as shown in table. If custom dimensions are desired specify when ordering.

Application

Tooling cart with inclined top panel for organizing various machine tools. Adjustable shelf for storing measuring tools and other equipment. Panels are made of a high strength composite material that is very resistant to scratches and solvents. Various panel colors are available. Hole sizes and patterns can be customized to fit users needs. Four casters (two with wheel brakes) allow easy maneuverability. Standard and custom designs are available - please call your nearest service center for more details.

Cart built out of clear anodized aluminum profiles will be shipped in kit form. Black profiles are available upon request. The unique IPS fastening system provides for fast and easy assembly. If required tool cart can also be shipped completely assembled.

Description	Unit	Part #
Tool Cart 760x520x1120	1 kit	60-001
Tool Cart, Custom	1 kit	60-001C

Working with the IPS System

Cutting, Servicing and Assembly

- **Cut profile to length**
  a. Use a high speed, carbide tooth cold-cut saw; no deburring or facing necessary.
  b. Or order cut to length by using part number labeled "cut off"

- **Tap extruded face hole and drill wrench clearance hole** for standard fastener; **drill step bore** for universal fastener.
  a. Drill tooling and locating fixtures available from stock
  b. Drill press operation only; no machining, welding, finishing

- **Small and/or Large Drilling Jigs**
  For locating 7mm wrench clearance holes for the standard connection. The small jig (PN 40-010) is optimal for profiles up to and including 40x40mm
  The large drilling jig (PN 40-011) is optimal for 80x40mm profiles and larger.

- **Pillar Drilling Jig** (PN 40-015)
  For locating the 20mm universal fasteners holes. This is a universal jig for all 40 series profiles (must be used on a drill press).

- **Pillar Drill** (PN 40-023 or -024)
  Tooling (step drill) for providing 20mm Universal Fastener hole.

- **6.8/7mm Drill** (PN 40-018)
  Drill face hole for M8x1.25 Tap and drill access hole for Standard Fastener

- **M8x1.25 Tap** (PN 40-016)

- **Wrenches for assembly**
  Ball Head Wrench (PN 40-013)
  T-Handle Wrench (PN 40-012)
  L-Wrench (PN 40-014)
  Allen Key Set (PN 40-009)

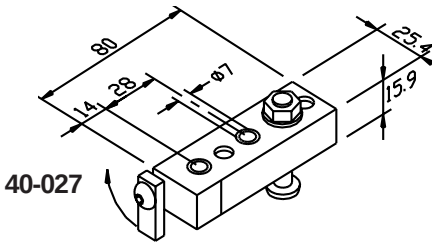
Processing Services

Description	Unit	Part #
Saw cut up to 80x40mm size profiles	per cut	19-001
Saw cut up to 80x80mm size profiles	per cut	19-002
Saw cut, 160x28 thru 160x80 profiles	per cut	19-003
Drill and Counter Bore for BHCS or SHCS	each	19-004
Drill and Counter Sink for FHCS	each	19-006
Saw cut for Linear Shafts	each	19-007
Tap Profile End 5/16-18	each	19-009
Tap Profile End M8	each	19-010
Drill 7mm Access Hole	each	19-011
Drill & Tap for M5, M6, M8 or M10	each	19-012
Drill & Tap for M3 or M4	each	19-013
Drill and Tap M12 or M16 (Knuckle Foot 80)	each	19-014
Step Drill for Universal Fastener 40 or 28	each	19-015
Drill and Tap M8 (Knuckle Foot 40)	each	19-016
Drill and Tap M10 (Knuckle Foot 40)	each	19-017
Service for dowel (securing Linear Shaft)	each	19-019
Drill 20mmx6mm for Pneu. Universal Fast.	each	19-020
Drill 7mm Access Hole through 160mm side	each	19-025
Panel Packaging for secure transport	1 package	19-026
Drill thru panel up to 10mm for screws	each	19-027
Chamfer Panel Corner	each	19-029
Notch Panel Corner	each	19-030
Special Service Cut	each	19-031
Mill Square up to 80x40	per end	19-100
Mill Square up to 80x80	per end	19-101
Mill Square up to 160x80	per end	19-102
Drill/Tap/Mill for Roller PA	each	19-103
Special Miter Cut	per cut	19-104
45º Miter Cut	per cut	19-105
Drill hole 0.25” for 28 & 56 profiles	each	19-128
Drill hole 0.323” for 40 & 80 profiles	each	19-140

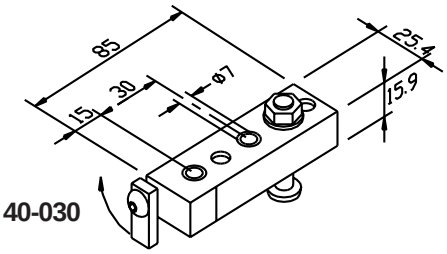
Drilling Jigs Std. Connection

Application
For precise location of 7mm access hole for standard connections.

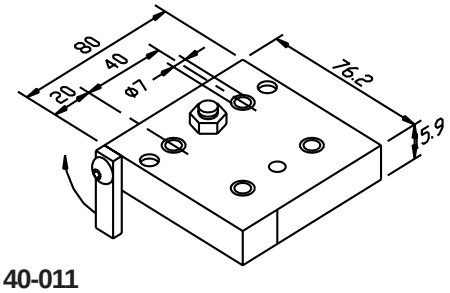
Technical Data
Al, anodized
Ground and hardened drill bushings with locations 28, 30 and 40mm between access holes. Clamping "T" bolt for firm attachment.



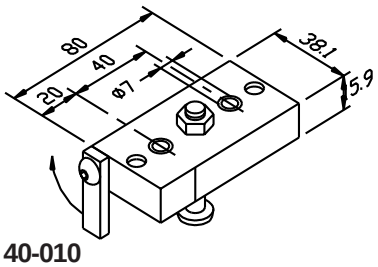
40-027



40-030



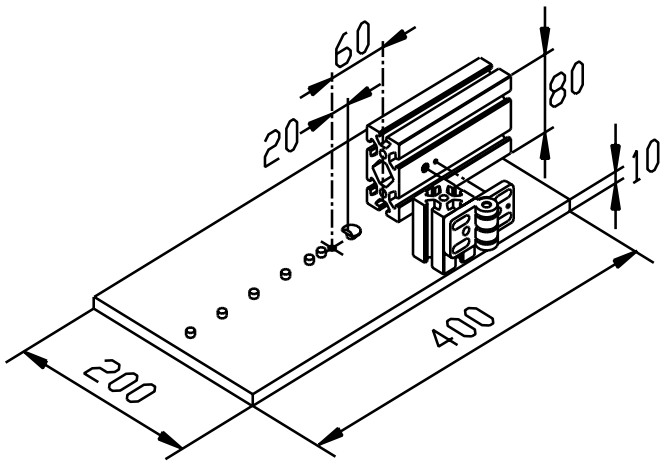
40-011



40-010

Description	Unit	Weight	Part #
Drilling Jig 40, Std. Connection	1 pc	.19 kg	40-010
Drilling Jig 80, Std. Connection	1 pc	.36 kg	40-011
Drilling Jig 28, Std. Connection	1 pc	.12 kg	40-027
Drilling Jig 30, Std. Connection	1 pc		40-030

Drilling Jig Universal Connection



Application
For precise location of 20mm dia. step bore for the universal connection, and the 7mm access hole for the standard connection on a drill press.

Technical Data
Plastic base plate
Al, anodized stop block
Zn cast, black hinge

Description	Unit	Weight	Part #
Drilling Jig 40, Univ. Connection	1 pc	2.35 kg	40-015

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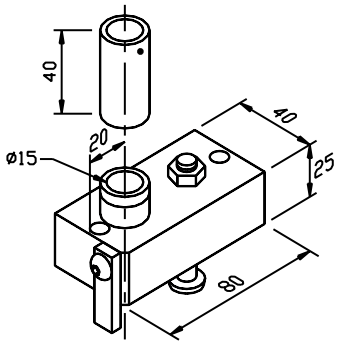
Drilling Jig Clamp Profile 40x40

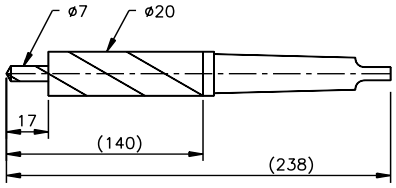


Application
For precise location clearance hole and counter bore for M8 or 5/16-18" BHCS or SHCS on Clamp Profile 40x40.

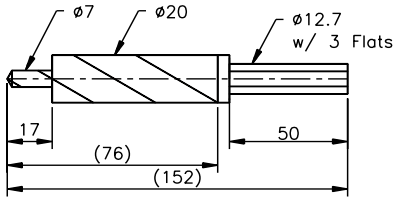
Technical Data
Al, anodized
Drill bushing hardened and polished.
Includes depth limit for step drill (40-025).

Description	Unit	Weight	Part #
Drilling Jig, Clamp Profile 40x40	1 pc	.49 kg	40-026

Step Drill 7x20 Univ. Connection



40-023



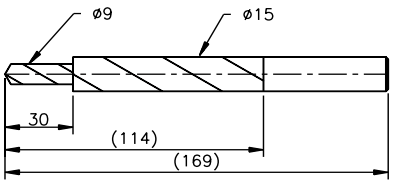
40-024

Application
Used for drilling 20 mm diameter step bore for universal or butt fastener with 40, 30 or 28 series profiles.

Technical Data
High performance, high speed steel, nitrated. #2 Morse Taper or 0.5" dia. with three flats.

Description	Unit	Weight	Part #
Step Drill 7x20, #2 Morse Taper	1 pc	.26 kg	40-023
Step Drill 7x20 with 3 Flats	1 pc	.19 kg	40-024

Step Drill 9x15



Application
Used for drilling and counter boring profile for M8 or 5/16-18" BHCS or SHCS.

Technical Data
High performance, high speed steel, nitrated. Straight shank.

Description	Unit	Weight	Part #
Step Drill 9x15	1 pc	.15 kg	40-025

6.8mm Drill Bit

Application
Tap drill size for M8x1.25 and drill size for standard fastener access hole.

Technical Data
6.8mm drill, right hand, jobbers length
High speed steel

Description	Unit	Weight	Part #
6.8mm Drill Bit	1 pc	20 g	40-018

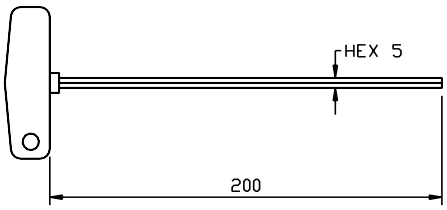
M8x1.25 Tap

Application
Tooling to provide M8 tap in profile face holes for standard fastening set.

Technical Data
M8x1.25 tap, right hand
High speed steel

Description	Unit	Weight	Part #
M8x1.25 Tap	1 pc	25 g	40-016

T-Handle Wrench

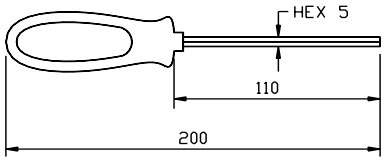


Application
For tightening of standard and universal connections.

Technical Data
Chrome vanadium steel, nickel plated
Acetate handle
5mm for hexagon socket screws

Description	Unit	Weight	Part #
Wrench with T-Handle	1 pc	.26 kg	40-012

Ball-Headed Wrench

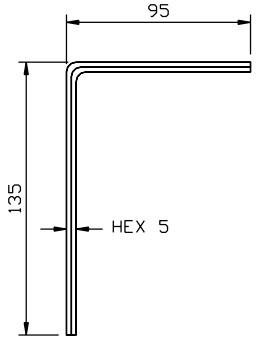


Application
For tightening of standard and universal connections.

Technical Data
Chrome vanadium steel, nickel plated
Plastic handle
5mm for hexagon socket screws

Description	Unit	Weight	Part #
Wrench with Ball-Head	1 pc	50 g	40-013

L-Handle Wrench



Application
For final tightening of standard and universal connections.

Technical Data
Chrome vanadium steel, nickel plated
5mm for hexagon socket screws

Description	Unit	Weight	Part #
L-Wrench	1 pc	35 g	40-014

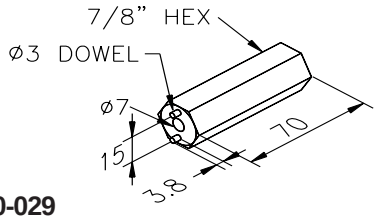
Allen Key Set

Application
For final tightening of standard and self-tapping fasteners.

Technical Data
High strength 8650 steel

Description	Unit	Weight	Part #
Allen Key Set (metric sizes)	1 pc	.19 kg	40-009

Spanner Wrenches



40-029

40-017

40-032-14

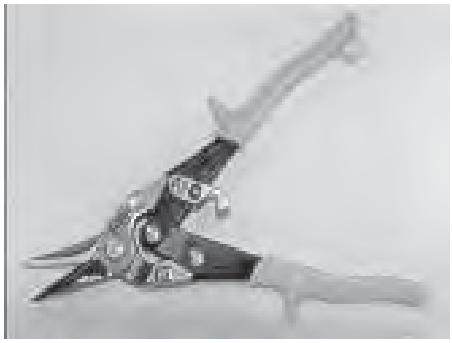
40-032-25

Application
Designed for tightening spanner nuts on linear guide systems 10, 14 and 25.

Technical Data
St, black or brown finish tempered with spot welded pins
40-029: Al, black anodized
Steel pins

Description	Unit	Weight	Part #
Adj. Spanner Wrench for Linear 10/14	1 pc	.11 kg	40-017
Pin Socket Wrench	1 pc	.08 kg	40-029
Spanner Wrench for Linear 10/14	1 pc	.04 kg	40-032-14
Spanner Wrench for Linear 25	1 pc	.10 kg	40-032-25

Scissors



Application
Cuts aluminum cover profile and various other materials.

Technical Data
Blades- Molybdenum steel
Handles- Alloy steel
Vinyl grips

Description	Unit	Weight	Part #
Scissors	1 pc	.38 kg	40-019

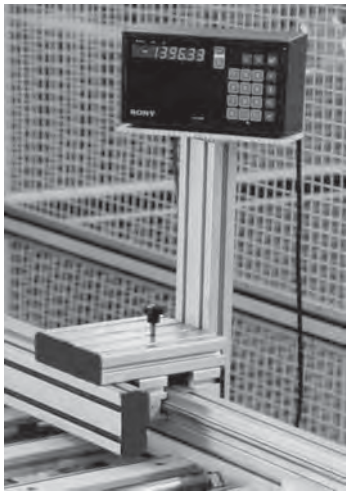
Mitre Saw

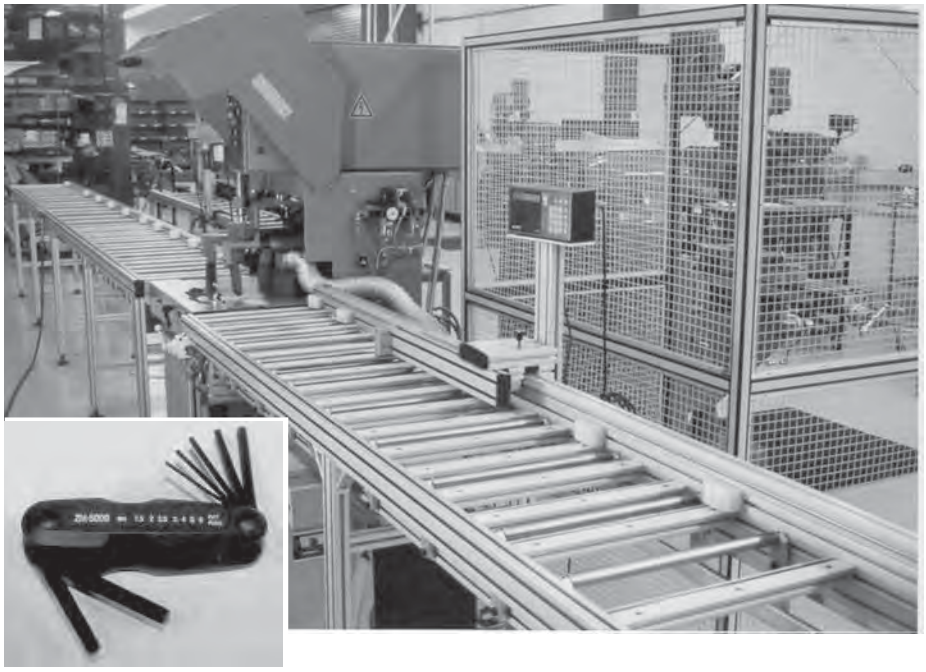
Application
Accurately cuts aluminum, wood and plastic at any miter angle (max. 57° right or left). Safety features include spindle lock, double insulation and electric brake. Saw blade for wood and one Vise Assembly included with the saw. Saw blade for aluminum (40-101) and second Vise Assembly (40-102) must be ordered separately. Saw table and pneumatic components can be added upon request.

Technical Data
Blade diameter = 15"
Blade Bore dia. = 1"
Max. output = 2.7 HP
No-Load speed = 3,400 RPM
Positive stops = 0º, 15º, 22.5º, 30º & 45º, R & L

Description	Unit	Weight	Part #
15" Mitre Saw	1 pc	25 kg	40-100
15" Carbide Tipped Blade (for Al.)	1 pc	2.12 kg	40-101
Vise Assembly	1 set	2.03 kg	40-102

Cut-to-Length Conveyor





Variety of applications include in-and-out conveyors for many industrial saws and drill presses as well as inspection lines. Digital readout and IPS roller system provide accurate measurements (up to ±0.05mm/0.002”). Pneumatic clamping and support components can be added to increase efficiency. A motorized cut off stop can be installed onto conveyor to provide fast and accurate positioning (up to ±0.05mm). Conveyor can also be used as a programmable pusher and built to required specifications.

5