HOLDEN & ASSOCIATES

ALBANY | ATLANTA | AUGUSTA | MACON | SAVANNAH

2014 PRODUCT CATALOG

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HOLDEN
& ASSOCIATES

To Our Valued Customers:

For over 60 years Holden and Associates has represented some of the leading HVAC manufacturers in the Georgia market. 2014 will be no different as we continue to partner with the best in the business.

Whether it is a sales force located in various offices throughout the state, the extensive engineering staff or the expertise of the leading manufacturers in their industries, Holden and Associates stands well equipped to be able assist you our customer.

Thank you for all you do.

We look forward to serving you.

Respectfully,

Shane McKnight
General Manager

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SQUARE LOUVERED FACE CEILING DIFFUSERS

See page 20 for dimensions

Model TDC
SURFACE MOUNT - BEVELED FRAME
Steel construction with white finish
Frame type 6

P/N #	Neck Size
T-TDC-6x6	6"X6"
T-TDC-9x9	9"X9"
T-TDC-12x12	12"X12"
T-TDC-15x15	15"X15"
T-TDC-18x18	18"X18"

Model TDC
LAY-IN - 24X24 PANEL
Steel construction with white finish
Frame type 3

P/N #	Neck Size
T-TDC-6x6-TBAR	6"X6"
T-TDC-6x6-6-TBAR	6"X6" / 6" round
T-TDC-9x9-TBAR	9"X9"
T-TDC-9x9-8-TBAR	9"X9" / 8" round
T-TDC-12x12-TBAR	12"X12"
T-TDC-12x12-10-TBAR	12"X12" / 10" round
T-TDC-12x12-12-TBAR	12"X12" / 12" round
T-TDC-15x15-14-TBAR	15"X15" / 14" round
T-TDC-18x18-TBAR	18"X18"
T-TDC-18x18-16-TBAR	18"X18" / 16" round

Model TDC-AA
Aluminum
24x24 lay-in frame
Frame type 3

P/N #	Neck Size
T-TDC-AA-12X12-10 T-BAR	12"X12" / 10" round
T-TDC-AA-12X12-12 T-BAR	12"X12" / 12" round
T-TDC-AA-15X15-14 T-BAR	15"X15" / 14" round
T-TDC-AA-6X6-6 T-BAR	6"X6" / 6" round
T-TDC-AA-9X9-8 T-BAR	9"X9" / 8" round

SLOT DIFFUSERS, INSULATED

Model TBDI
24 gauge galvanized steel
1 1/2" slot width
Fully adjustable left, right or vertical
Maximum performance and flexibility

See page 42 for dimensions

P/N #	Description
T-TBDI-80-6X24-1	1 slot, 24" long, 6" inlet
T-TBDI-80-8X24-1	1 slot, 24" long, 8" inlet
T-TBDI-80-8X24-2	2 slots, 24" long, 8" inlet
T-TBDI-80-6X48-1	1 slot, 48" long, 6" inlet
T-TBDI-80-6X48-2	2 slots, 48" long, 6" inlet
T-TBDI-80-8X48-1	1 slot, 48" long, 8" inlet
T-TBDI-80-8X48-2	2 slots, 48" long, 8" inlet
T-TBDI-80-10X48-1	1 slot, 48" long, 10" inlet
T-TBDI-80-10X48-2	2 slots, 48" long, 10" inlet
T-TBDI-80-12X48-1	1 slot, 48" long, 12" inlet
T-TBDI-80-12X48-2	2 slots, 48" long, 12" inlet

LINEAR SLOT DIFFUSERS

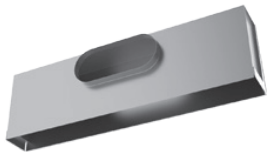
Model ML-39
Aluminum

See page 39 for dimensions

P/N #	Size	Frame
T-ML39-1X48	1 Slot, 48" long	1A
T-ML39-2X48	2 Slots, 48" long	1A

SLOT DIFFUSER INSULATED PLENUM

Model MPI-39

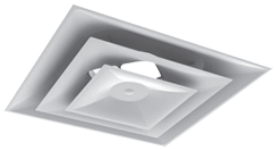


See page 41 for dimensions

P/N #	Size	Frame Type
T-MPI39,1SL	1 slot, 8" plenum	1A
T-MPI39,2SL	2 slots, 10" plenum	1A

Titus Redefine your comfort zone

SQUARE CONE CEILING DIFFUSERS (3 CONE)



See page 23 for dimensions

Model TMS
LAY-IN - 24X24 PANEL WITH ROUND NECK
Steel construction with white finish
Cones are one piece die-formed
Inner cone assembly has special lock for fast easy installation

P/N #	Neck Size	Frame Type
T-TMS-6	6"	3
T-TMS-8	8"	3
T-TMS-10	10"	3
T-TMS-12	12"	3
T-TMS-14	14"	3
T-TMS-15	15"	3

Model TMS
LAY-IN - 12X12 PANEL WITH ROUND NECK
Steel construction with white finish

P/N #	Neck Size	Frame Type
T-TMS-6-12X12	6"	3
T-TMS-8-12X12	8"	3

Model TMS
LAY-IN - 24X24 PANEL WITH ROUND NECK
Steel construction with white finish, insulated back pan

P/N #	Neck Size	Frame Type
T-TMS-6I	6"	3
T-TMS-8I	8"	3
T-TMS-10I	10"	3
T-TMS-12I	12"	3
T-TMS-14I	14"	3

STEEL SQUARE CONE DIFFUSERS (4 CONES)

Model TMQ
24x24 lay-in frame

P/N #	Neck Size	Frame Type
T-TMQ-6	6"	3
T-TMQ-8	8"	3
T-TMQ-10	10"	3
T-TMQ-12	12"	3
T-TMQ-14	14"	3

SQUARE CEILING DIFFUSERS (3 CONE)

See page 23 for dimensions

Model TMS-AA
LAY-IN - 24X24 PANEL WITH ROUND NECK
Aluminum construction with white finish

P/N #	Neck Size	Frame Type
T-TMS-AA-6	6"	3
T-TMS-AA-8	8"	3
T-TMS-AA-10	10"	3
T-TMS-AA-12	12"	3
T-TMS-AA-14	14"	3

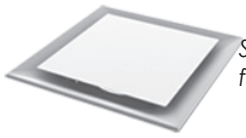
Model TMSA
Lay-in - 24x24 panel with adjustable round neck

P/N #	Neck Size	Frame Type
T-TMSA-6	6"	3
T-TMSA-8	8"	3
T-TMSA-10	10"	3
T-TMSA-12	12"	3
T-TMSA-14	14"	3
T-TMSA-15	15"	3

Titus
Redefine your comfort zone.

STEEL PLAQUE DIFFUSERS

Model OMNI
24x24 lay-in frame



See page 25 for dimensions

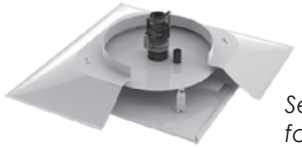
P/N #	Size	Frame Type
T-OMNI-6	6"	3
T-OMNI-6-12X12	6"*	3
T-OMNI-8	8"	3
T-OMNI-8-12X12	8"*	3
T-OMNI-10	10"	3
T-OMNI-12	12"	3
T-OMNI-14	14"	3
T-OMNI-15	15"	3

*12x12 frame

SQUARE PLAQUE THERMAL DIFFUSERS

Model T3SQ-HC

24x24 lay-in frame



See page 37 for dimensions

P/N #	Neck Size	Frame Type
T-T3SQ-HC-6	6"	3
T-T3SQ-HC-8	8"	3
T-T3SQ-HC-10	10"	3
T-T3SQ-HC-12	12"	3

STEEL DOOR GRILLES

Model T-700L

Heavy duty steel construction with aluminum finish

Double flanged frame

See page 42 for dimensions

P/N #	Size
T-T-700L-12X12	12"X12"
T-T-700L-12X12-ALM	12"X12"
T-T-700L-18X12	18"X12"
T-T-700L-18X12-ALM	18"X12"
T-T-700L-18X18	18"X18"
T-T-700L-18X18-ALM	18"X18"
T-T-700L-24X12	24"X12"
T-T-700L-24X12-ALM	24"X12"
T-T-700L-24X24	24"X24"
T-T-700L-24X24-ALM	24"X24"

FILTER GRILLES

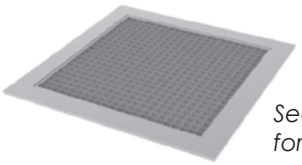
Lay-in T-bar frame

1/2 " Aluminum grid core

See page 31 for dimensions

P/N #	Description	Frame Type
T-50FF-20X20	20"x20" neck/24"x24" face	3

EGGCRATE FACE RETURNS



See page 30 for dimensions

Model 50F

1/2" Aluminum grid core

Surface mount or lay-in frame

White finish

P/N #	Size	Frame Type
T-50F-6X6	6"X6"	1
T-50F-8X8	8"X8"	1
T-50F-10X10	10"X10"	1
T-50F-12X12	12"X12"	1
T-50F-14X14	14"X14"	1
T-50F-16X16	16"X16"	1
T-50F-18X18	18"X18"	1
T-50F-22X22	22"X22"*	1
T-50F-24X24	24"X24"	1
T-50F-22X10	22"X10"*	1
T-50F-48x24	48"X24"*	1
T-50F-24X12	24"X12"	1

*No screw holes for lay-in ceiling

EGGCRATES CORE ONLY - ALUMINUM

Model ALC

P/N #	Size
ALC-ALUMWHT1224F	1'X2'
ALC-ALUMWHT2424F	2'X2'
ALC-ALUMWHT2448F	2'X4'

EGGCRATE FACE RETURNS - PLASTIC

Model EC

Core only

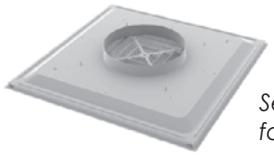
P/N #	Size
EC-1X2	1'X2'
EC-2X2	2'X2'
EC-2X4	2'X4'

Redefine your comfort zone

PERFORATED CEILING DIFFUSERS

Model PSS

Steel perforated
24x24 lay-in frame
Deflectors in neck



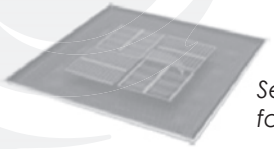
See page 32 for dimensions

P/N #	Size	Frame Type
T-PSS-6	6"	3
T-PSS-8	8"	3
T-PSS-10	10"	3
T-PSS-12	12"	3
T-PSS-14	14"	3

PERFORATED CEILING DIFFUSERS

Model PAS

Cold rolled steel with white finish
24 X 24 Lay-in frame
Deflectors on face



See page 33 for dimensions

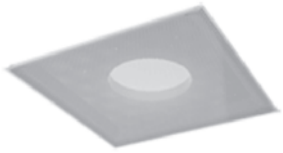
P/N #	Size	Frame Type
T-PAS-12X12-6	6"/12"x12"*	3
T-PAS-24X24-6	6"	3
T-PAS-24X24-8	8"	3
T-PAS-24X24-10	10"	3
T-PAS-24X24-12	12"	3
T-PAS-24X24-14	14"	3

*Diffuser, 12x12 face

STEEL PERFORATED RETURNS

Model PAR, PXP

Cold rolled steel with white finish. Hinged, removable face screen with spring quick-release latches



See page 33 for dimensions

P/N #	Frame Size	Neck Size
T-PAR-24X24-6	24"X24"	6"
T-PAR-24X24-8	24"X24"	8"
T-PAR-24X24-10	24"X24"	10"
T-PAR-24X24-12	24"X24"	12"
T-PAR-24X24-14	24"X24"	14"
T-PAR-24X24-16	24"X24"	16"
T-PAR-22X10	24"X12"	22"X10"
T-PAR-22X22	24"X24"	22"X22"
T-PAR-10X10	12"X12"	10"X10"
T-PAR-24X24-10X10	24"X24"	10"X10"
T-PAR-12X12-6	12"X12"	6"
Without Frame:		
T-PXP-24X12		24"X12"
T-PXP-24X24		24"X24"

ROUND CONE CEILING DIFFUSERS

Model TMR
ROUND CEILING DIFFUSER

Steel construction with white finish

See page 37 for dimensions

P/N #	Size
T-TMR-6	6"
T-TMR-8	8"
T-TMR-10	10"
T-TMR-12	12"
T-TMR-14	14"
T-TMR-16	16"

Redefine your comfort zone

RETURN/EXHAUST AIR GRILLES

Model 350-RL

Steel construction
Blades are fixed at 45 degree deflection
Borders are all-welded construction w/reinforced precision mitered corners. White finish
Frame type 1

See page 29 for dimensions

P/N #	Size
T-350RL-8X4	8"X4"
T-350RL-6X6	6"X6"
T-350RL-8X6	8"X6"
T-350RL-10X6	10"X6"
T-350RL-12X6	12"X6"
T-350RL-14X6	14"X6"
T-350RL-16X6	16"X6"
T-350RL-18X6	18"X6"
T-350RL-24X6	24"X6"
T-350RL-8X8	8"X8
T-350RL-10X8	10"X8"
T-350RL-12X8	12"X8"
T-350RL-14X8	14"X8"
T-350RL-16X8	16"X8"
T-350RL-18X8	18"X8"
T-350RL-24X8	24"X8"
T-350RL-10X10	10"X10"
T-350RL-12X10	12"X10"
T-350RL-14X12	14"X12"
T-350RL-22X22*	22"X22"

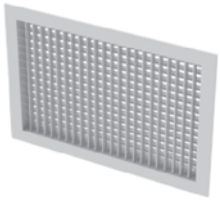
P/N #	Size
T-350RL-14X10	14"X10"
T-350RL-22X10	22"X10"
T-350RL-12X12	12"X12"
T-350RL-18X12	18"X12"
T-350RL-24X12	24"X12"
T-350RL-30X12	30"X12"
T-350RL-36X12	36"X12"
T-350RL-14X14	14"X14"
T-350RL-16X16	16"X16"
T-350RL-18X18	18"X18"
T-350RL-24X18	24"X18"
T-350RL-36X18	36"X18"
T-350RL-22X22	22"X22"
T-350RL-24X24	24"X24"
T-350RL-36X24	36"X24"
T-350RL-48X24	48"X24"
T-350RL-20X20	20"X20"
T-350RL-22X10	22"X10"
T-350RL-22X22	22"X22"
T-350RL-22X10*	22"X10"

* Without screw holes

DOUBLE DEFLECTION SUPPLY REGISTERS

Model 300RS

3/4" blade spacing
All steel construction with white finish
Opposed blade damper, steel
Vertical front blade with horizontal rear blades
Frame type 1



See page 29 for dimensions

P/N #	Size
T-300RS-8X4	8"X4"
T-300RS-10X4	10"X4"
T-300RS-12X4	12"X4"
T-300RS-14X4	14"X4"
T-300RS-6X6	6"X6"
T-300RS-8X6	8"X6"
T-300RS-10X6	10"X6"
T-300RS-12X6	12"X6"
T-300RS-14X6	14"X6"
T-300RS-16X6	16"X6"
T-300RS-18X6	18"X6"
T-300RS-20X6	20"X6"
T-300RS-24X6	24"X6"
T-300RS-8X8	8"X8"
T-300RS-10X8	10"X8"
T-300RS-12X8	12"X8"
T-300RS-14X8	14"X8"

P/N #	Size
T-300RS-16X8	16"X8"
T-300RS-18X8	18"X8"
T-300RS-20X8	20"X8"
T-300RS-24X8	24"X8"
T-300RS-10X10	10"X10"
T-300RS-12X10	12"X10"
T-300RS-14X10	14"X10"
T-300RS-16X10	16"X10"
T-300RS-18X10	18"X10"
T-300RS-20X10	20"X10"
T-300RS-24X10	24"X10"
T-300RS-12X12	12"X12"
T-300RS-14X12	14"X12"
T-300RS-16X12	16"X12"
T-300RS-18X12	18"X12"
T-300RS-24X12	24"X12"

Redefining your home horizons

T-BAR FRAME FOR SLOT DIFFUSERS

Model TBF

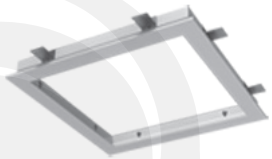
All aluminum construction with white finish

P/N #	Size
DONCO-TBF-24-1	24" long, 1 slot
DONCO-TBF-48-1	48" long, 1 slot
DONCO-TBF-48-2	48" long, 2 slot

PLASTER FRAMES

Model TRM

Aluminum rapid mount frame



P/N #	Size
T-TRM-12X12	12"X12"
T-TRM-24X12	24"X12"
T-TRM-24X24	24"X24"
T-TRM-48X24	48"X24"

ACCESSORIES

P/N #	Description
CROWN-RED-266-16	16" --> 15" reduced
T-PAINT-WHITE	Paint - white spray
T-FLEXRIGHT	Flexright elbow
T-INSULATING BLANKET	Insulating blanket

DIRECTIONAL VANES

Model DB

P/N #	Size
T-DB-12X12	12"X12"
T-DB-24X24	24"X24"

SECTORIZING BAFFLES

Model SB

Steel

P/N #	Size
T-SB-6	6"
T-SB-8	8"
T-SB-10	10"
T-SB-12	12"
T-SB-14	14"
T-SB-15	15"

FIBERGLASS BOXES

Model FB

P/N #	Size
FLEX-FB1224	12"X24"
FLEX-FB2424	24"X24"

Titus
Redefine your comfort zone.

SQUARE TO ROUNDS
Model STR

24 Gauge galvanized steel
2 1/2" deep collar with bead for secure duct connection
Black interior

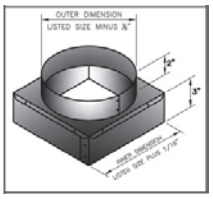
P/N #	Size
DONCO-STR-22X10X6	22"X10"X6"
DONCO-STR-22X10X8	22"X10"X8"
DONCO-STR-22X10X10	22"X10"X10"
DONCO-STR-22X22X6	22"X22"X6"
DONCO-STR-22X22X8	22"X22"X8"
DONCO-STR-22X22X10	22"X22"X10"
DONCO-STR-22X22X12	22"X22"X12"
DONCO-STR-22X22X14	22"X22"X14"
DONCO-STR-22X22X16	22"X22"X16"
DONCO-STR-22X22X18	22"X22"X18"
DONCO-STR-22X22X20	22"X22"X20"

STAINLESS STEEL QUICK RELEASE CLAMPS
Model LS

P/N #	Size
FLEXMASTER LS-188	10"
FLEXMASTER LS-232	12"
FLEXMASTER LS-258	14"
FLEXMASTER LS-280	16"

SQUARE TO ROUNDS
Model SRT-B

Black painted interior



P/N #	Size
JA-SRT-B-6X6-4	6X6, 4" round
JA-SRT-B-6X6-6	6X6, 6" round
JA-SRT-B-8X8-6	8X8, 6" round
JA-SRT-B-8X8-8	8X8, 8" round
JA-SRT-B-9X9-6	9X9, 6" round
JA-SRT-B-9X9-8	9X9, 8" round
JA-SRT-B-10X10-6	10X10, 6" round
JA-SRT-B-10X10-8	10X10, 8" round
JA-SRT-B-10X10-10	10X10, 10" round
JA-SRT-B-12X12-6	12X12, 6" round
JA-SRT-B-12X12-8	12X12, 8" round
JA-SRT-B-12X12-10	12X12, 10" round
JA-SRT-B-12X12-12	12X12, 12" round
JA-SRT-B-15X15-12	15X15, 12" round
JA-SRT-B-15X15-14	15X15, 14" round
JA-SRT-B-18X18-12	18X18, 12" round
JA-SRT-B-18X18-16	18X18, 16" round
JA-SRT-B-18X18-18	18X18, 18" round

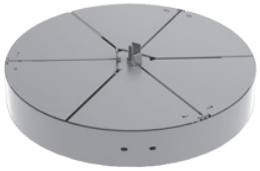
CATAMOUNT STRAPS
Model CAT-L

P/N #	Description
CAT-L-36-175	36 - 50 COUNT
CAT-L-48-175	48 - 50 COUNT

OPPOSED BLADE DAMPERS
Model AG-95-L

P/N #	Size
T-AG-95-L-6X6	6"X6"
T-AG-95-L-8X8	8"X8"
T-AG-95-L-9X9	9"X9"
T-AG-95-L-10X10	10"X10"
T-AG-95-L-12X12	12"X12"
T-AG-95-L-14X14	14"X14"
T-AG-95-L-15X15	15"X15"
T-AG-95-L-16X16	16"X16"
T-AG-95-L-18X18	18"X18"
T-AG-95-L-22X22	22"X22"
T-AG-95-L-24X24	24"X24"

OPPOSED BLADE DAMPERS
Model D-75
Steel duct-mounted
Snap on round neck



P/N #	Size
T-D-75-6	6"
T-D-75-8	8"
T-D-75-10	10"
T-D-75-12	12"

RADIAL DAMPERS
Model D-100
Steel duct-mounted

P/N #	Size
T-D-100-6	6"
T-D-100-8	8"
T-D-100-10	10"
T-D-100-12	12"
T-D-100-14	14"

RADIAL DAMPERS
Steel butterfly damper.

P/N #	Size
T-AG-85-15	15"

OPPOSED BLADE DAMPERS
Model AG-15-K

P/N #	Size
T-AG-15-K-6X6	6"X6"
T-AG-15-K-8X8	8"X8"
T-AG-15-K-10X10	10"X10"
T-AG-15-K-12X12	12"X12"
T-AG-15-K-14X14	14"X14"
T-AG-15-K-16X16	16"X16"
T-AG-15-K-18X18	18"X18"
T-AG-15-K-20X20	20"X20"
T-AG-15-K-22X22	22"X22"
T-AG-15-K-24X24	24"X24"

FLAT TAKEOFFS - STICK-ON

Model ATSD

Scoop, damper, standoff bracket

P/N #	Size
MC-ATSD-5+S/O	5"
MC-ATSD-6+S/O	6"
MC-ATSD-7+S/O	7"
MC-ATSD-8+S/O	8"
MC-ATSD-10+S/O	10"
MC-ATSD-12+S/O	12"
MC-ATSD-14+S/O	14"
MC-ATSD-16+S/O	16"
MC-ATSD-18+S/O	18"

ROUND PIPE TAKEOFFS - STICK-ON

Model ATRP

Scoop, damper, standoff bracket

P/N #	Size
MC-ATRP-SD-5+S/O	5"
MC-ATRP-SD-6+S/O	6"
MC-ATRP-SD-7+S/O	7"
MC-ATRP-SD-8+S/O	8"
MC-ATRP-SD-10+S/O	10"
MC-ATRP-SD-12+S/O	12"

BELLMOUTHS WITH DAMPERS

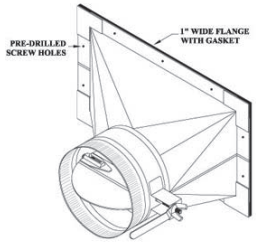
Model BM-D

P/N #	Size
BM-D-6	6"
BM-D-8	8"
BM-D-10	10"
BM-D-12	12"
BM-D-14	14"
BM-D-16	16"

45° TAKEOFFS

Model 3300DS

Fabricated from galvanized steel
Standoff bracket, damper

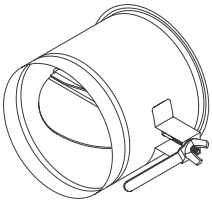


P/N #	Size
CROWN-3300DS-6	6"
CROWN-3300DS-8	8"
CROWN-3300DS-10	10"
CROWN-3300DS-12	12"
CROWN-3300DS-14	14"
CROWN-3300DS-16	16"
CROWN-3300DS-18	18"
CROWN-3300DS-20	20"

SPIN-IN TAKEOFFS

Model 3726-S

Scoop, damper, standoff bracket



P/N #	Size
CROWN-3726-S-6	6"
CROWN-3726-S-8	8"
CROWN-3726-S-10	10"
CROWN-3726-S-12	12"
CROWN-3726-S-14	14"
CROWN-3726-S-16	16"
CROWN-3726-S-18	18"
CROWN-3726-S-20	20"

ATCO R4.2 FOIL INSULATED FLEX DUCT
Model UPC030

P/N #	Size
FLEX-UPC030-12 BAG	12"X25'
FLEX-UPC030-14 BAG	14"X25'
FLEX-UPC030-16 BAG	16"X25'
FLEX-UPC030-18 BAG	18"X25'
FLEX-UPC030-20	20"X25'

ATCO R6.0 FOIL INSULATED FLEX DUCT
Model UPC036

P/N #	Size
FLEX-UPC036-4 BAG	4"X25'
FLEX-UPC036-6	6"X25'
FLEX-UPC036-6 BAG	6"X25'
FLEX-UPC036-7 BAG	7"X25'
FLEX-UPC036-8 BAG	8"X25'
FLEX-UPC036-10 BAG	10"X25'
FLEX-UPC036-12 BAG	12"X25'
FLEX-UPC036-14 BAG	14"X25'
FLEX-UPC036-16 BAG	16"X25'
FLEX-UPC036-18 BAG	18"X25'
FLEX-UPC036-20 BAG	20"X25'

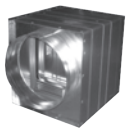
THERMAFLEX R6.0
Model MKE

P/N #	Size
FLEX-MKE-6	6"X25'
FLEX-MKE-8	8"X25'
FLEX-MKE-10	10"X25'
FLEX-MKE-12	12"X25'
FLEX-MKE-14	14"X25'
FLEX-MKE-16	16"X25'
FLEX-MKE-18	18"X25'
FLEX-MKE-20	20"X25'

FIRE DAMPERS WITH 12" SLEEVE

Model DFD 150X

Dynamic rated



P/N #	Size
DFD150X-6 TYPE CR	6"
DFD150X-8 TYPE CR	8"
DFD150X-10 TYPE CR	10"
DFD150X-12 TYPE CR	12"
DFD150X-12X12 TYPE A	12"X12"
DFD150X-14 TYPE CR	14"
DFD150X-16 TYPE CR	16"
DFD150X-18 TYPE CR	18"
DFD150X-18X12 TYPE A	18"X12"
DFD150X-20 TYPE CR	20"
DFD150X-24X12 TYPE A	24"X12"
DFD150X-24X24 TYPE A	24"X24"

DRYWALL ACCESS DOORS

Model MILCOR

P/N #	Size
MILCOR-8X8	8"X8"
MILCOR-10X10	10"X10"
MILCOR-12X12	12"X12"
MILCOR-16X16	16"X16"
MILCOR-18X18	18"X18"
MILCOR-24X24	24"X24"

CEILING RADIATION DAMPERS

Model CRD-2

P/N #	Size
CRD-2-6	6"
CRD-2-8	8"
CRD-2-10	10"
CRD-2-12	12"
CRD-2-14	14"

ROUND ACCESS DOORS

Model AD

P/N #	Size
AD-6R	10"X6" for 6" round duct
AD-8R	10"X6" for 8" round duct
AD-10R	10"X6" for 10" round duct
AD-12R	16"X12" for 12" round duct
AD-14R	16"X12" for 14" round duct
AD-16R	16"X12" for 16" round duct

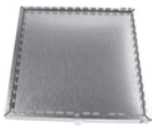
SPIN IN ACCESS DOORS

Model SDSMR6

P/N #	Size
SDSMR6-8	8"
SDSMR6-10	10"
SDSMR6-12	12"

ACCESS DOORS FOR INSULATED DUCT

Model DCM



P/N #	Size
DCM-6X6	6"X6"
DCM-8X8	8"X8"
DCM-10X10	10"X10"
DCM-12X12	12"X12"
DCM-18X18	18"X18"

GREASE DUCT ACCESS DOORS

Model F2

P/N #	Size
F2-8X4	8"X4"
F2-12X8	12"X8"
F2-16X12	16"X12"

FUSIBLE LINKS

P/N #	Description
165 DEGREE LINK	165 DEGREE
212 DEGREE LINK	212 DEGREE

SNAPLOCK PIPE
Model MC-SL

P/N #	Size	Gauges
MC-SL60430	4"X5'	30
MC-SL60630	6"X5'	30
MC-SL60830	8"X5'	30
MC-SL601030	10"X5'	30
MC-SL601230	12"X5	30
MC-SL36-1428	14"X3	28
MC-SL36-1626	16"X3'	26
MC-SL36-1826	18"X3'	26
MC-SL36-2026	20"X3	26

SNAPLOCK PIPE REDUCERS
Model MC-66

P/N #	Size
MC-66-6X4	6/4"
MC-66-8X6	8/6"
MC-66-10X8	10/8"
MC-66-14X12	14/12"
MC-66-16X14	16/14"

ACCESSORIES

P/N #	Description
DS-DS1H	100' roll hanging duct strap, 1", 26 gauge
HW7X1/2Z 1M	1/2" zip screw, 1000 per box
NAS-322-3IN	50 yards 3" wide foil tape
HCAST-VG181-WHT	1 gallon water based duct sealer
RCD-BRUSH	3" duct sealer brush

LINE DAMPERS
Model MC-44

P/N #	Size
MC-44-6	6"
MC-44-8	8"
MC-44-10	10"
MC-44-12	12"
MC-44-14	14"
MC-44-16	16"

SNAPLOCK PIPE ELBOWS
Model MC-90

P/N #	Size	Gauges
MC-90430	4"	30
MC-90630	6"	30
MC-90830	8"	30
MC-901030	10"	30
MC-901230	12"	30
MC-901428	14"	28
MC-901626	16"	26
MC-901826	18"	26
MC-902026	20"	26

CENTRIFUGAL INLINE FANS

Model BSQ

Disconnect

P/N #	HP	Performance
BSQ-100-4X-QD	1/4	1080 cfm @ 1/4"
BSQ-90-4X-QD	1/4	800 cfm @ 1/4"

DIRECT DRIVE EXHAUST FANS

Model CE-12-DS-HP

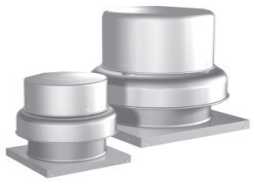
3 speed, gravity damper, junction box

P/N #	Voltage	Performance (cfm)
CE-12-DS-HP	120/1	560/710/825

DIRECT DRIVE ROOF EXHAUST FANS

Model G

Birdcreen, disconnect, UL705 listed

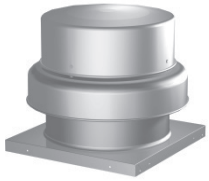


P/N #	HP	Performance
G-065-DGEX-QD	1/30	232 cfm @ 1/8" esp
G-075-DGEX-QD	1/25	377 cfm @ 1/8" esp
G-080-DGEX-QD	1/20	439 cfm @ 1/8" esp
G-085-DGEX-QD	1/20	528 cfm @ 1/8" esp
G-090-DGEX-QD	1/15	701 cfm @ 1/8" esp
G-095-DGEX-QD	1/8	969 cfm @ 1/8" esp

BELT DRIVE ROOF EXHAUST FANS

Model GB

Birdscreen, disconnect, UL705 listed



P/N #	HP	Performance
GB-081-4X-QD-R2	1/4	793 cfm @1/8"
GB-091-4X-QD-R2	1/4	1192 cfm @1/8"
GB-101-4X-QD-R2	1/4	1292 cfm @1/8"
GB-121-4X-QD	1/4	1292 cfm @1/8"
GB-141-5X-QD	1/2	2347 cfm @1/8"
GB-161-5X-QD	1/2	2943 cfm @1/8"
GB-180-5X-QD	1/2	3388 cfm @1/8"

DIRECT INLINE EXHAUST FANS

Model SQ

Disconnect, gravity damper

P/N #	HP	Performance
SQ-120-VG5X-QD	1/6	1190 @ 1/8"
SQ-75-DGEX-QD	1/30	294 @ 1/8"
SQ-80-DGEX-QD	1/12	395 @ 1/8"
SQ-90-DGEX-QD	1/10	655 @ 1/8"
SQ-95-DGEX-QD	1/8	830 @ 1/8"

PROPELLER UPBLAST FANS

Model RBU

Butterfly dampers, 12" high flat roof curbs

P/N #	HP	Performance
RBU-2L48	5	36000 cfm @ 1/8"

GREENECK Building Your Air.

INLINE CABINET FANS

Model CSP

Gravity damper, disconnect
"A" models include insulated housing

P/N #	Performance
CSP-A1050	1050 cfm @ 1/8" esp
CSP-A110	110 cfm @ 1/8" esp
CSP-A200	200 cfm @ 1/8" esp
CSP-A250	250 cfm @ 1/8" esp
CSP-A290	290 cfm @ 1/8" esp
CSP-A390	390 cfm @ 1/8" esp
CSP-A410	410 cfm @ 1/8" esp
CSP-A510	510 cfm @ 1/8" esp
CSP-A700	700 cfm @ 1/8" esp
CSP-A710	710 cfm @ 1/8" esp
CSP-A780	780 cfm @ 1/8" esp
CSP-B110	110 cfm @ 1/8" esp
CSP-B150	150 cfm @ 1/8" esp
CSP-B200	200 cfm @ 1/8" esp

MODEL CUBE UPBLAST EXHAUST FANS

Model CUBE

Disconnect, UL705 listed

P/N #	HP	Performance
CUBE-101-4G-QD	1/4	920 cfm @ 1/4" esp
CUBE-141-5G-QD	1/2	1260 cfm @ 1/4" esp

CEILING EXHAUST FANS

Model SP-A

Disconnect, gravity damper, insulating housing
"C" models can be field converted to inline

P/N #	Performance
SP-A1050-C	1050 cfm @ 1/8" esp
SP-A125-C	125 cfm @ 1/8" esp
SP-A190	190 cfm @ 1/8" esp
SP-A200-C	200 cfm @ 1/8" esp
SP-A290-C	290 cfm @ 1/8" esp
SP-A390-C	390 cfm @ 1/8" esp
SP-A410-C	410 cfm @ 1/8" esp
SP-A510-C	510 cfm @ 1/8" esp
SP-A70	70 cfm @ 1/8" esp
SP-A710-C	710 cfm @ 1/8" esp
SP-A90	90 cfm @ 1/8" esp

CEILING EXHAUST FANS

Model SP

Disconnect, gravity damper

P/N #	Performance
SP-B150	150 cfm @ 1/8" esp
SP-B200	200 cfm @ 1/8" esp
SP-B50	50 cfm @ 1/8" esp
SP-B70	70 cfm @ 1/8" esp
SP-B80	80 cfm @ 1/8" esp
SP-B90	90 cfm @ 1/8" esp
SP-GRILLE	

SP CONVERSION KITS

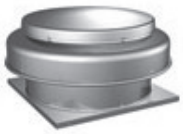
Model SP

Convert SP ceiling fans to inline configuration

P/N #
SP KIT A110-A190
SP KIT A200-A190
SP KIT A110-A190
SP KIT A110-A190

GREENHECK Building Value in Air.

GRAVITY VENTS
Model GRS



P/N #	Size
GRS-8-QD	8"
GRS-10-QD	10"
GRS-12-QD	12"
GRS-16-QD	16"
GRS-20-QD	20"
GRS-24-QD	24"

BRICK VENTS
Model BV

Designed for installation in masonry walls
Anodized aluminum construction
Built-in aluminum mesh insect screen

P/N #	For use with sizes
BV-128-FL	50-290
BV-157-FL	390-510
BV-808-FL	700-1050

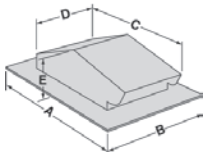
DRAINABLE BLADE LOUVERS
Model ESD-403

4" channel frame, mill finish, birdscreen

P/N #	Size
ESD-403-12X12	12"X12"
ESD-403-18X18	18"X18"
ESD-403-24X24	24"X24"

ROOF JACKS
Model RJ

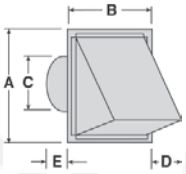
Steel construction with black enamel finish
Integral flashing flange, bird screen & damper



P/N #	Size
RJ-4	4"
RJ-6X9	6"X9"
RJ-10X10	10"X10"

ROUND WALL CAPS
Model WC

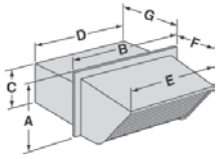
Aluminum construction
Built-in bird screen & damper



P/N #	Size
WC-4	4"
WC-6	6"
WC-8	8"

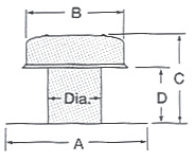
RECTANGULAR WALL CAPS
Model WC

Steel construction with black enamel finish
Built-in bird screen & damper



P/N #	Size
WC-10x3	10"x3"

FLANGED ROOF CAPS
Model RFC-7



P/N #	Size
RFC-7	7"

GREENHECK
Building Value in Air.

12" NON-CANTED CURBS

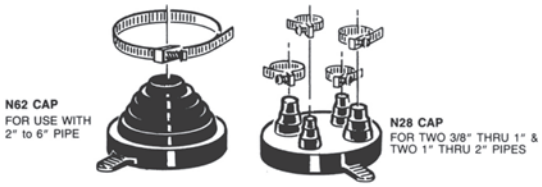
Model NRC

Galvanized construction
1-1/2" thick 3lb. insulation
Wood nailer

P/N #	Size
NRC17	17"
NRC19	19"
NRC22	22"
NRC26	26"
NRC30	30"
NRC34	34"
NRC40	40"
NRC46	46"
NRC58	58"

PIPE PORTALS

Model RPS



P/N #	Description
RPS-32101	N28 cap only
RPS-MISPPN18-RCP2A	N28 roof cap with 11" high curb
RPS-MISPPN62-RCP2A	N62 roof cap with 11" high curb

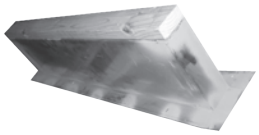
DISCHARGE COLLARS

Model RDC-6

P/N #	Size
RDC-6	6"

EQUIPMENT RAILS

Model ES-SS-48



P/N #	Size
ES-SS-48	4'

GRAVITY DAMPERS

Model WD

P/N #	Size
WD-330-12X12	12"X12"
WD-330-16X16	16"X16"
WD-330-19X19	19"X19"
WD100-8X8	8"X8"
WD100-12X12	12"X12"
WD100-16X16	16"X16"
WD100-18X18	18"X18"
WD90-8X8	8"X8"

SOLID STATE SPEED CONTROL

Model WSSCS

P/N #	Description
5WSSC	5 watts
10WSSC	10 watts

VIBRATION KITS

Model VI

P/N #	Description
VI KIT SP/CSP	Neoprene hangers

ELECTRIC UNIT HEATERS & ACCESSORIES
Model MUH

P/N #	Description
MUH-0371	3 KW @ 277/1
MUH-0541	5 KW @ 480/3
MUH-0581	3 KW @ 208/1-3
MUH-07-4	7.5 KW @ 480/3
MUH-072	7.5 KW @ 240/1-3
MUH-10-4	10 KW @ 480/3

Model MUH Accessories

P/N #	Description
MUH-MMB10	Mounting bracket
MUH-MPDS25	Disconnect switch
MUH-MT1	Thermostat
AWHSM	Surface Mounting Frame

HEAVY DUTY WALL HEATERS
Model AWH
Disconnect, thermostat

P/N #	Description
AWH4404-2	1.5/3 KW @ 208/1
AWH4407-2	2/4 KW @ 277/1
AWH4408	2/4 KW @ 208/1

DOWNFLOW CEILING MOUNTED HEATERS
Model CDF

P/N #	Description
CDF-547	2/3/4 KW @ 277/1
CDF-548	2/3/4 KW @ 208/1-3

Model CDF Accessories

P/N #	Description
CDF-DS	Power disconnect switch
CDF-RE	Recess mounting enclosure only
CDF-SE	Surface mounting enclosure only
CDF-T	Thermostat SPST Range 45 to 95F
CDF-TR4	208/240V Primary Transformer/24V sec.
CDF-TR7	277V Primary Transformer/24V sec.

DISCONNECT
Model N1TS-1

P/N #	Description
N1TS-1	NEMA-1 / 115 volts

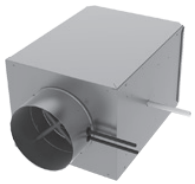
HEAT / COOL THERMOSTAT
Model ETD5STS

P/N #	Description
ETD5STS	Line voltage thermostat

SINGLE DUCT TERMINAL UNITS

Model DESV

Airflow monitoring ring, protective control shroud

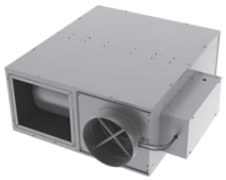


P/N #	Inlet Size	Liner
T-DESV-6-DW	6"	Solid metal
T-DESV-6-FF	6"	Fiber free
T-DESV-8-DW	8"	Solid metal
T-DESV-8-FF	8"	Fiber free
T-DESV-10-DW	10"	Solid metal
T-DESV-10-FF	10"	Fiber free
T-DESV-12-DW	12"	Solid metal
T-DESV-12-FF	12"	Fiber free
T-DESV-14-DW	14"	Solid metal
T-DESV-14-FF	14"	Fiber free
T-DESV-16-DW	16"	Solid metal
T-DESV-16-FF	16"	Fiber free

POWERED FAN TERMINAL UNITS

Model DTQP

Airflow monitoring ring, protective control, fan speed control, airflow switch, door interlock disconnect switch



P/N #	Box Size	Inlet Size	Electric Heater
T-DTQP-2-277HTR	2"	6"	3 kw@277/1, 1 stage
T-DTQP-3-277HTR	3"	8"	6 kw@277/1, 1 stage
T-DTQP-4-480HTR	4"	10"	9 kw@480/3, 2 stages

ESV WATERCOILS

P/N #	Box Size	Rows
T-1R SIZE 6	6"	1
T-2R SIZE 6	6"	2
T-2R SIZE 8	8"	2
T-2R SIZE 10	10"	2
T-2R SIZE 12	12"	2
T-2R SIZE 14	14"	2
T-2R SIZE 16	16"	2

PNEUMATIC CONTROLS

P/N #	Description
T-CONTROL 2	Pneumatic Controller II
T-ACTUATOR	Pneumatic Actuator
T-PNEUMATIC CONTROL	Pneumatic control kit

CONTROL BOXES

P/N #	Description
T-3107299	Control box

GREENHECK MOTOR STARTERS

Model MSAC

Standard control motor starter with Nema 1 enclosure, HOA selector, pilot light for HOA, solid state overload

P/N #	Nema Size
GH-MSAC-0	0
GH-MSAC-1	1
GH-MSAC-2	2

Model MSAC-MP

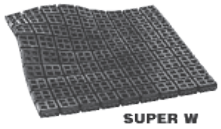
Standard control motor starter with disconnect Nema 1 enclosure, HOA selector, pilot light for HOA, solid state overload

P/N #	Nema Size
GH-MSAC-MP-0	0
GH-MSAC-MP-1	1
GH-MSAC-MP-2	2

MASON INDUSTRIES VIBRATION ISOLATION

Model SUPER W

Waffled neoprene pads



P/N #	Rated Load	Deflection	Size
MI-R18X18SW	9720 #	0.1"	18"X18"*
MI-R2X2SW	120 #	0.1"	2"X2"

* Can be cut into 2" x 2" squares

LDS RUBBER HANGERS

Model LDS

Neoprene rubber hangers

P/N #	Rated Load	Deflection
MI-HD-A-GREEN	75 #	0.35"

COMBINATION SPRING & NEOPRENE HANGERS

Model 30N

Spring and neoprene hanger, allows for 30° misalignment

P/N #	Rated Load	Deflection
MI-30N-K-175	175 #	1.20"
MI-30N-K-76	76 #	1.22"

FLOOR MOUNTED SPRINGS

Model SLFH with baseplate

Spring mount with neoprene baseplate with leveling bolt

P/N #	Rated Load	Deflection
MI-SLFP-A-75	75 #	1.50"
MI-SLFP-A-125	125 #	1.33"

Titus
The Leader in Air Management

Square and Rectangular Ceiling Diffusers

Diffusers

TDC, TDCA

LOUVERED FACE, HIGH CAPACITY

Available Steel Models:

TDC	• with fixed discharge
TDCA	• with adjustable discharge

Available Aluminum Models:

TDC-AA	• with fixed discharge
TDCA-AA	• with adjustable discharge

Products Include:

- Standard Finish - #26 White.

- Titus Series TDC diffusers handle an unusually large amount of air for a given pressure drop and noise level.

- Pleasing appearance harmonizes with various architectural details - especially modular ceiling systems.

- Maintains an unbroken horizontal flow pattern from maximum cfm down to minimum. Excellent performance in variable air volume systems.

- In the TDCA and TDCA-AA models, movable vanes, accessible from the face, adjust the discharge pattern from horizontal to vertical.

- Core is easily removable from the face of the diffuser.

- Lever operator on the optional Model AG-95 damper allows easy volume adjustment from the face of the diffuser.

TDC, TDCA

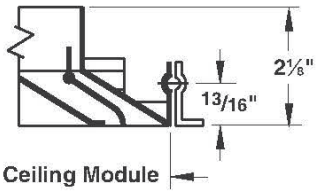
- Extremely flexible, with cores available for one-, two-, three- or four-way horizontal flow.

- Material is 22-gauge steel or aluminum with miscellaneous steel components.

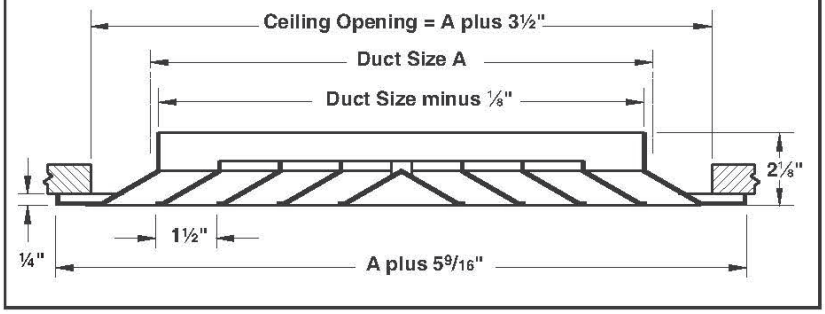
- For a uniform face appearance on all neck sizes, specify an 18 x 18-inch dimension A size and the desired round neck size. This is available in 24 x 24-inch lay-in module size only.

BORDER TYES

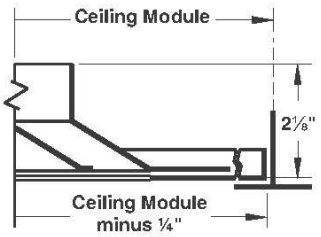
Border Type 2
(Snap-In)



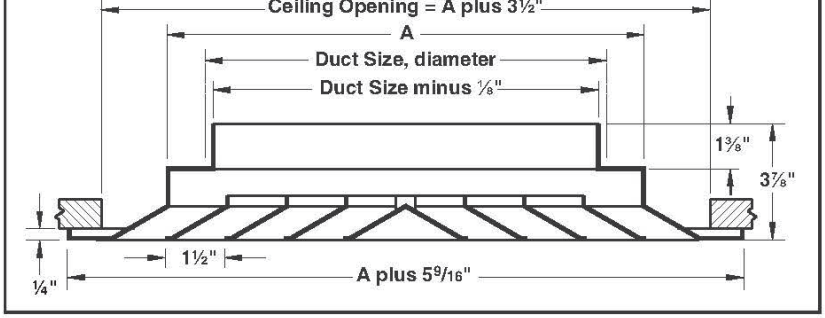
Border Type 1 (Surface Mount)
Square or Rectangular Neck



Border Type 3
(Lay-In)



Border Type 1 (Surface Mount)
Round Neck



All dimensions are in inches.

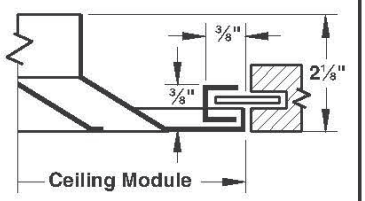
Titus
The Leader in Air Management

DIMENSIONS

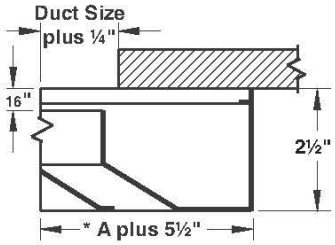
Diffusers

BORDER TYES (continued)

Border Type 4 (Spline)

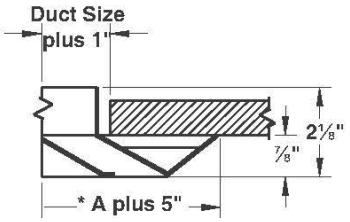


Border Type 5 (Dropped Face)

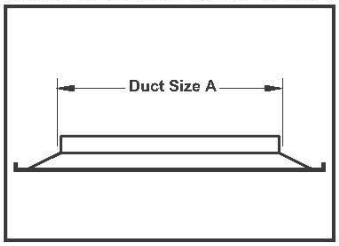


Available in Steel Only
Note: Std. diffuser is 2½" deep. Optional 4" deep diffuser is available.

Border Type 6 (Beveled Drop Face)



AVAILABLE DUCT SIZES - SQUARE AND RECTANGULAR NECKS



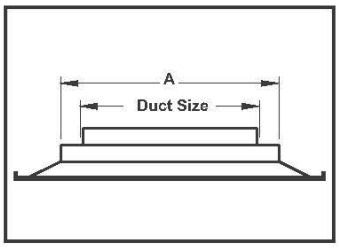
Border Types 1, 5, 6	
Minimum Duct Size A	Maximum Duct Size A
6 x 6	48 x 48

Note: Duct sizes are available in 3" increments only. Maximum duct size for border 5 is 36" x 36".

Border Types 2, 3*, 4					
Available Module Size	Min. Duct Size A	Max. Duct Size A TDC (Steel)	Max. Duct Size A TDC-AA (Alum.)	Max. Duct Size A TDCA (Steel, Adj.)	Max. Duct Size A TDCA-AA (Alum., Adj.)
12 x 12	6 x 6	9 x 9*	9 x 9*	6 x 6	6 x 6
24 x 24	6 x 6	21 x 21*	21 x 21*	18 x 18	18 x 18
48 x 24	12 x 12	45 x 21*	42 x 21*	18 x 18	18 x 18

* Frame 3 maximum duct size available in 4-way blow only.

AVAILABLE DUCT SIZES - ROUND NECKS

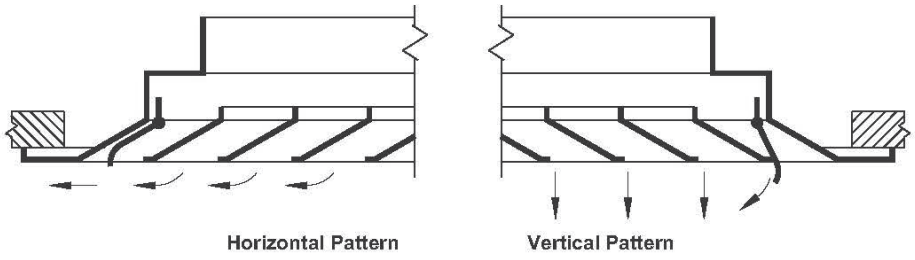


Border Types 1, 5, 6	
Dimension A	Available Round Duct Size
6 x 6	6
9 x 9	6, 8
12 x 12	6, 8, 10, 12
15 x 15	6, 8, 10, 12, 14
18 x 18	6, 8, 10, 12, 14, 16

Note: Round duct sizes are available only in sizes shown. Border type 5 is only available in steel.

Border Types 2, 3, 4		
Available Module Size	Dimension A	Available Round Duct Size
12 x 12	6 x 6	6
	9 x 9	6, 8
24 x 24	6 x 6	6
	9 x 9	6, 8
	12 x 12	6, 8, 10, 12
	15 x 15	6, 8, 10,
		12, 14
	18 x 18	6, 8, 10,
		12, 14, 16

ADJUSTING HORIZONTAL-TO-VERTICAL DISCHARGE PATTERN - TDCA, TDCA-AA

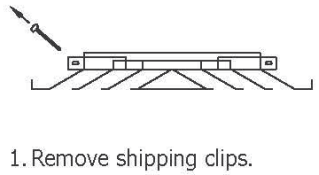


Titus
The Leader in Air Management

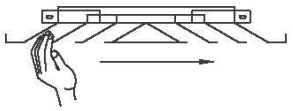
DIMENSIONS

Diffusers

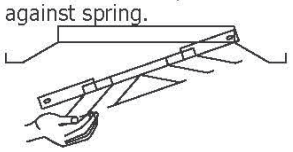
REMOVING CENTER CORE



1. Remove shipping clips.

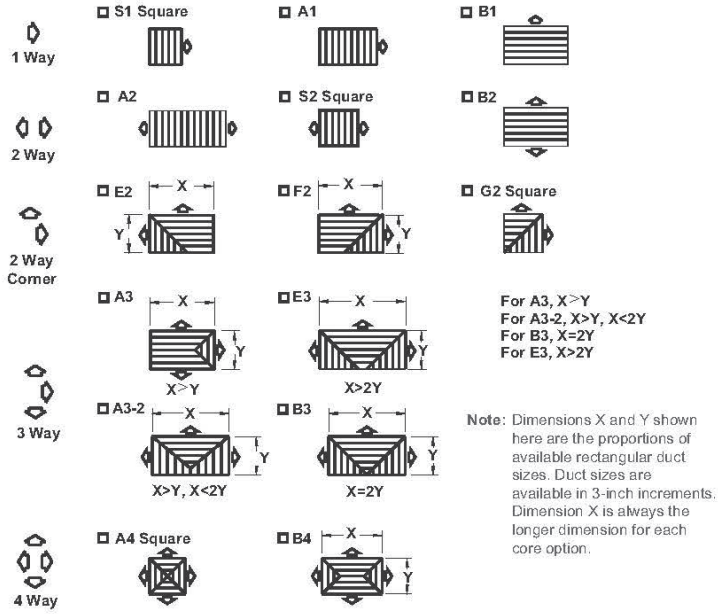


2. Push core sideways against spring.



3. Hold core securely and allow to drop down.

OPTIONAL PATTERNS

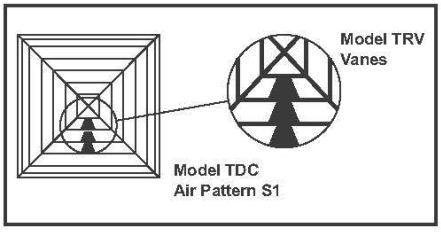


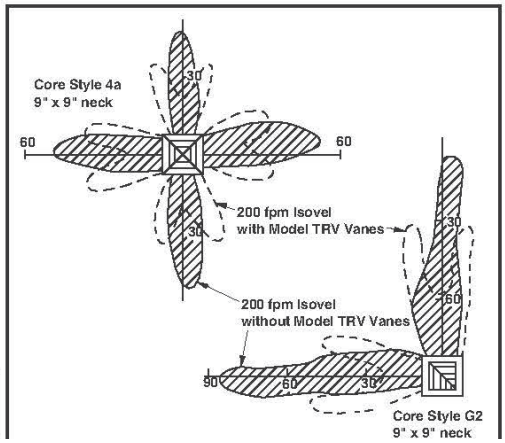
Note: Patterns are shown in plan view (looking down into inlet).

Optional Patterns (continued)

PERFORMANCE

- The table below shows the quantity and location of Model TRV vanes required per side of the diffuser.
- Throw reduction will be shown in the isovel diagrams.
- Total pressure will be 1.40 times that listed in the diffuser performance table.
- Sound level will be 4 NC higher than that listed in the diffuser performance table.





Dimension X Inches	Quantity of Model TRV Vanes Required (per Side)											
	3	6	9	12	15	18	21	24	27	30	36	48
X	-	1	1½	2½	3	4	5	5	6	7	8	11
L=(0.67)X	-	2	2	3	4	4	5	7	7	8	10	14
X	1½	3	4	5	7	8	9	11	12	13	16	22
X												

Titus
The Leader in Air Management

Square Ceiling Diffusers

TMS, TMS-AA

HIGH PERFORMANCE

Available Models:

TMS	• Steel
TMS-AA	• Aluminum

Products Include:

- Standard Finish - #26 White.

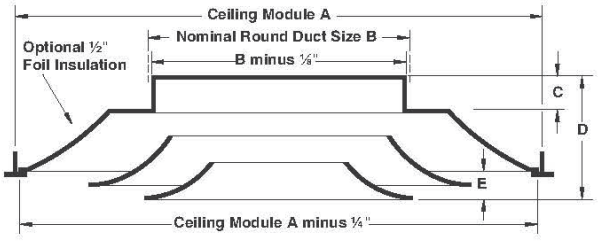
- Titus Models TMS and TMS-AA square ceiling diffusers deliver supply air in a true 360° pattern. Designed to protect ceilings from streaking and smudging.
- Excellent performance in variable air volume systems. The uniform, nearly horizontal jet from the outer cone maintains effective room air distribution even when the air volume varies over a considerable range.
- All sizes have three cones, giving a uniform appearance where different neck sizes are used in the same area.
- Screwdriver adjustment of the optional damper is achieved without removing the inner cone. (See Step 2 in Adjusting Optional Damper, Removing Center Core diagram on the following page.)
- Quick removal of the inner cone with a hex key. (See Step 3 in Adjusting Optional Damper, Removing Center Core diagram on the following page.)
- All cones are die-stamped, one piece construction. Smooth, clean surfaces with no corner joints.

TMS, TMS-AA

- Optional factory-installed R-6 foil-backed insulation available for 24 x 24-inch full face models, neck sizes 6-15, borders 1, 2, 3 and 4.
- Optional SB sectorizing baffle is available. Consult your Titus representative for details.
- Material: all sizes are available in steel (Model TMS). Only the 24 x 24-inch ceiling module is available in aluminum with steel bar (Model TMS-AA).

Ceiling Module A	Nominal Round Duct Size B	C	D	E
12x12	4, 5 (note 2)	3⅛	5⅜	⅜
12x12	6, 7 (note 3)	1⅛	3⅜	⅜
12x12	8	1¼	3½	⅝
24x24	6, 8	1¼	5	¼
24x24	10, 12, 14, 15	1⅜	5⅛	¼

Frame Type 3
Full Face (Lay-In)

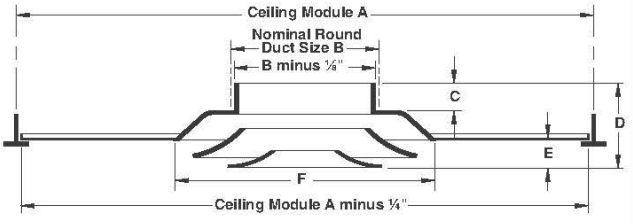


(note 1)

Notes:

1. Aluminum construction is available in full face 24" x 24" ceiling module only. Steel construction is available in all sizes.
2. Adapter is provided for sizes 4 and 5.
3. The smallest neck size available in aluminum is 6 inches.

Frame Type 3
Panel Mounted
(Lay-In)



(note 1)

Ceiling Module A	Nominal Round Duct Size B	Nominal Face Size F	C	D	E
24x24	4, 5 (note 2)	12x12	3⅛	5⅜	⅜
24x24	6, 7 (note 3)	12x12	1⅛	3⅜	⅜
24x24	8	12x12	1¼	3½	⅝

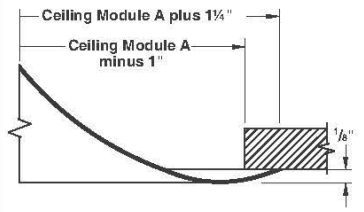
All dimensions are in inches.

Titus
The Leader in Air Management

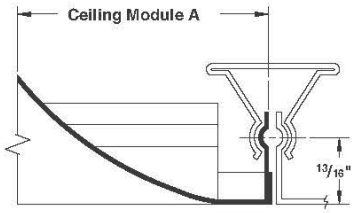
DIMENSIONS

OTHER AVAILABLE FRAME TYPES

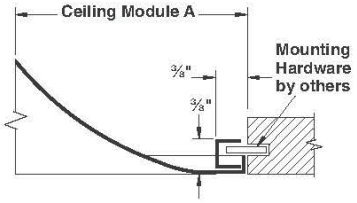
Frame Type 1
(Surface Mount) Full Face



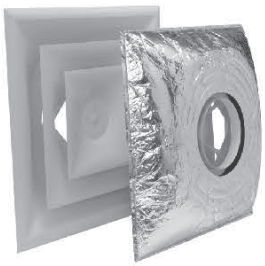
Frame Type 2
(Snap-In) Full Face or Panel Mounted



Frame Type 4
(Spline) Full Face or Panel Mounted

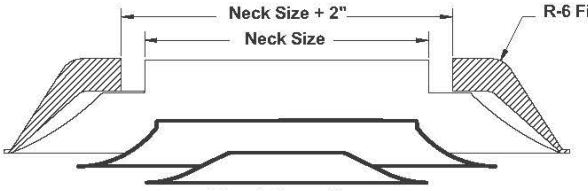


Ceiling Module	Face Size	Nominal Round Duct Sizes	Frame Types
12 x 12	12 x 12	4, 5, 6, 7, 8	1, 2, 3, 4
24 x 24	24 x 24	6, 8, 10, 12, 14, 15	1, 2, 3, 4
24 x 24 (Panel)	12 x 12	4, 5, 6, 7, 8	2, 3, 4

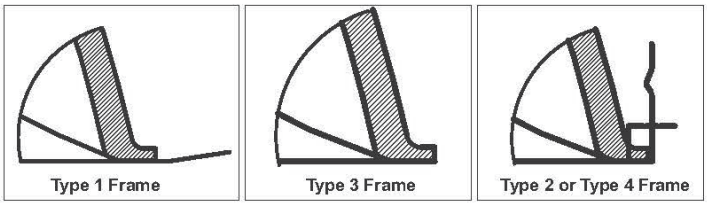


Optional Molded Insulation Blanket

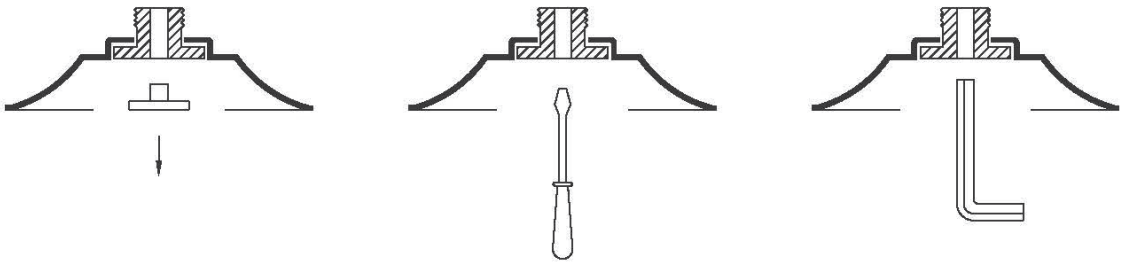
Insulation is R-6 where blanket has the most depth. One-inch clearance on each side of neck is left for insulated duct connection. 24 x 24-inch full face models only.



Type 3 Frame Shown



ADJUSTING OPTIONAL DAMPER - REMOVING CENTER CONE



1. Remove center plug.

2. Insert screwdriver through hex hole to adjust optional damper.

3. Insert hex key (by others) and unscrew center hub to remove center cone.

All dimensions are in inches.

Titus
The Leader in Air Management

Architectural Ceiling Diffusers

OMNI, OMNI-AA

Great For Open Ceiling Installation

MRI COMPATIBLE

SQUARE PLAQUE

Available Models:

OMNI	• Steel
OMNI-AA	• Aluminum

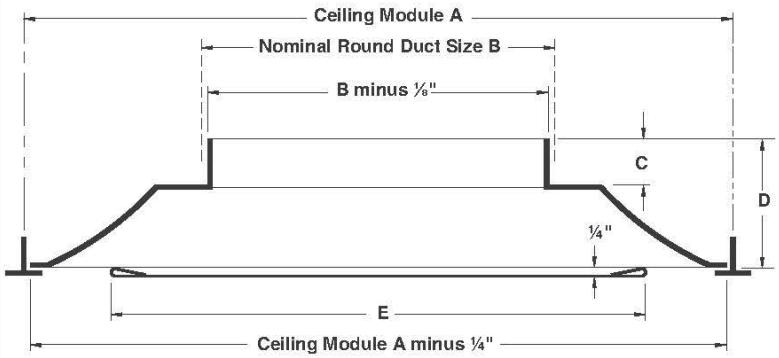
Products Include:

- **Standard Finish - #26 White.**
- The Titus OMNI diffuser satisfies architectural as well as engineering criteria. Its strong, clean, unobtrusive lines harmonize with the ceiling system, without sacrificing performance.
- The curvature of the OMNI backpan works with the formed edges of the face panel to deliver a uniform 360° horizontal air pattern, without excessive noise or pressure drop.
- The OMNI diffuser is an excellent choice for variable air volume systems. The air pattern remains tight and horizontal for effective room air distribution, even when the volume varies over a wide range.
- The face panel is constructed from 22-gauge steel or heavy gauge aluminum. The edgesof the face panel are formed to a radius for a solid, crisp appearance. The formed edges also stiffen the face panel and assure a straight and level surface.
- The formed edges of the face panel capture another 22-gauge steel or heavy gauge aluminum panel that the hanger brackets are mechanically fastened to. This process provides the OMNI face with a smooth finish under any lighting conditions.

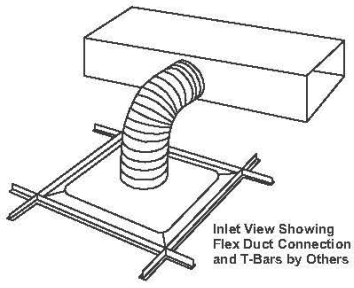
OMNI, OMNI-AA

- The OMNI-AA is entirely constructed of aluminum, perfect for MRI applications.
- The face panel is held in place by four hook brackets that positively engage into slots in the backpan. The panel can be removed from the backpan for easy installation of the diffuser or for access to the optional damper.
- The new face panel construction ensures a smooth, clean appearance and easier installation and removal.
- Optional factory-insulated R-6 foil-backed insulation available for 24 x 24-inch full face models, neck sizes 6-15, borders 1, 2, 3 and 4.

Frame Type 3
(Lay-In) Full Face



Inlet View



Ceiling Module A	Nominal Round Duct Size B	C	D	E
12 x 12 (note 2)	4, 5 (note 1)	2⅞	4	9
	6, 7	1⅛	2¼	
	8	1¼	2⅜	
20 x 20	4, 5 (note 1)	2¾	5¼	13⅝
	6, 8, 10	¾	3¼	
24 x 24	6, 8	1¼	3¾	18
	10, 12, 14, 15	1⅜	3⅞	

Note 1: Adapter is provided for sizes 4 and 5.
Note 2: 12 x 12-inch module is available in steel only.

All dimensions are in inches.

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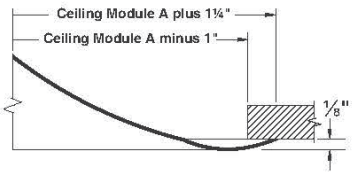
DIMENSIONS

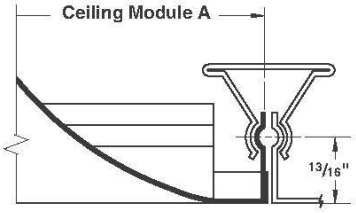
Diffusers

ADDITIONAL FRAME TYPES

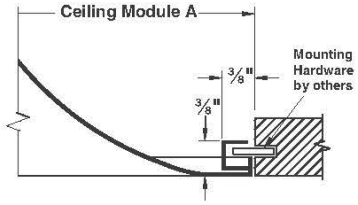
Frame Type 1
(Surface Mount) Full Face



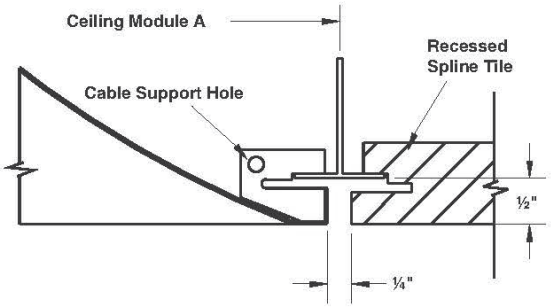
Frame Type 2
(Snap-In) Full Face or Panel Mounted



Frame Type 4
(Spline) Full Face or Panel Mounted

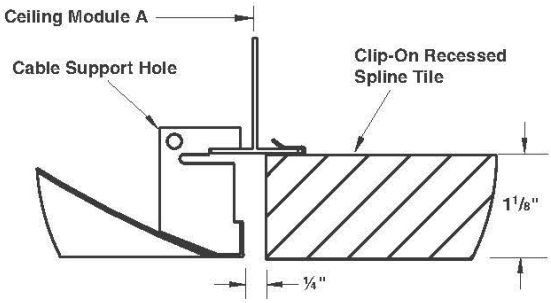


Frame Type 4V - (Recessed Spline) - Full Face



Note: If Border 4V is adjacent to a light fixture a gap will be visible above the backpan. A T-bar extender is available to fill this void, available from the ceiling manufacturer.

Frame Type 4T - (Clip-On Recessed Spline) - Full Face



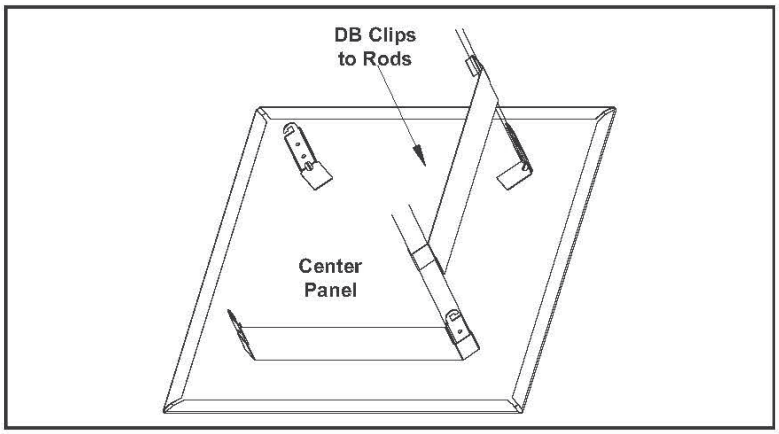
Borders 4V and 4T have four mounting clips. Two clips on opposed sides with holes to attach mounting wire from above.

OPTIONAL DIRECTIONAL BLOW CLIPS

Available Model:

DB

- Converts OMNI diffuser from standard 4-way blow to 1-, 2- or 3-way.
- Clips attach to hanger brackets on upper face of center panel.



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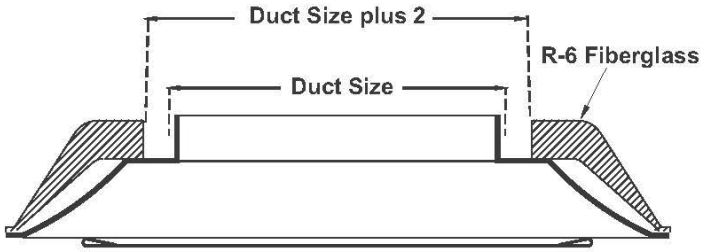
DIMENSIONS

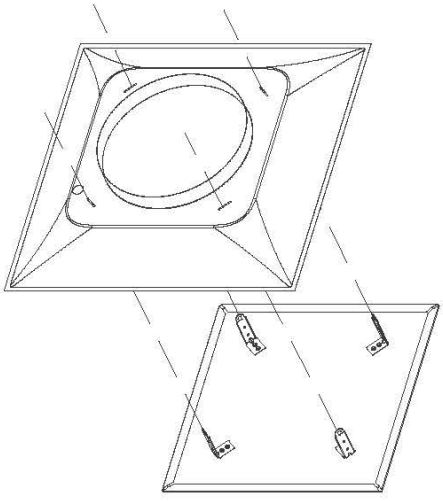
Diffusers

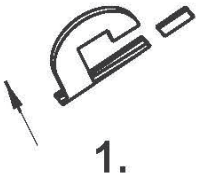
OPTIONAL MOLDED INSULATION BLANKET



Insulation is R-6 where blanket has the most depth. One inch clearance on each side of neck is left for insulated duct connection. 24 x 24-inch full face models only.

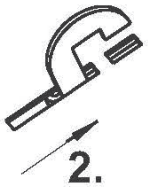
REMOVING AND REPLACING FACE PANEL - ADJUSTING OPTIONAL DAMPER





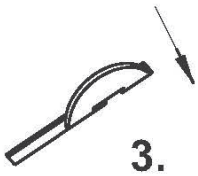
Installing Face Panel

1. Insert the hook brackets into the slots in the backpan.
2. Rotate the face panel clockwise until...
3. The hooks positively engage in the secondary slots in the backpan.



Removing Face Panel

1. Lift the faceplate towards the backpan to disengage the hook brackets from the backpan slots.
2. Rotate the faceplate counterclockwise.
3. Lower the faceplate away from the backpan.



Adjusting Optional Damper

1. Remove face panel as above.
2. Use flat blade screwdriver to turn operator shaft at center of damper.
3. Replace face panel.

All dimensions are in inches.

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Supply Grilles (continued)

300/350 Grilles

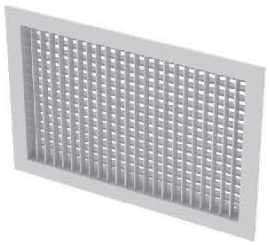
301/300 (FL, FS)

¾-INCH SPACING - ALUMINUM

Available Single Deflection Models:
301FL
301FS

Available Double Deflection Models:
300FL
300FS

Products Include:
- Material: Roll-formed Aluminum Border and Blades on sizes up to 24 x 24 inches. Extruded Aluminum Border for Larger Sizes.
- Standard Finish - #26 White.
- Available Border Types: #1 - Surface Mount.
- Countersunk Screw Holes.
- #8 x 1¼-inch long Phillips Flat Head Sheet Metal Screws, Painted White.
- Optional Steel or Aluminum Opposed-Blade Damper.



300FS

301FS

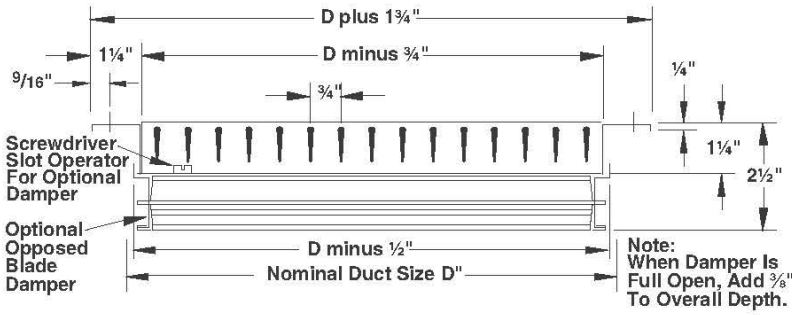
301FS
- Great for areas with high humidity or subject to moisture.
- ¾-inch blade spacing.
- Single deflection.
- Individually adjustable blades.
- Blades parallel to the short dimension.

301FL
- Same as 301FS with blades parallel to the long dimension.

300FS
- Great for areas with high humidity or subject to moisture.
- ¾-inch blade spacing.
- Double deflection.
- Individually adjustable blades.
- Front blades parallel to the short dimension.

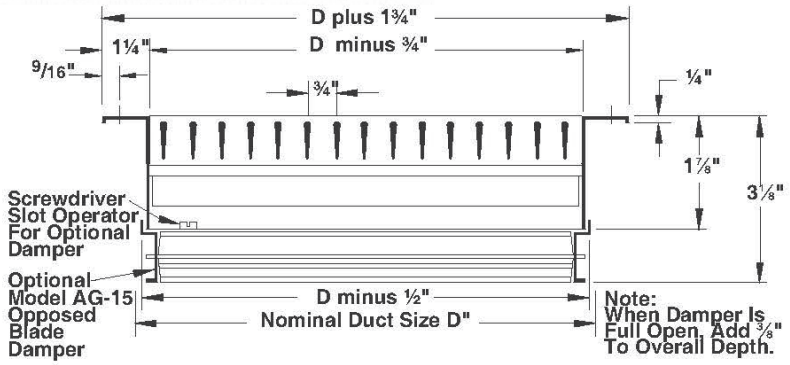
300FL
- Same as 300FS with front blades parallel to the long dimension.

Single Deflection Models 301FL/FS - Border Type 1



Available sizes (D" x D") are 6 x 4 inches through 48 x 48 inches in 1-inch increments.
Odd and fractional sizes are available at additional cost.

Double Deflection Models 300FL/FS - Border Type 1



Available sizes (D" x D") are 6 x 4 inches through 48 x 48 inches in 1-inch increments.
Odd and fractional sizes are available at additional cost.

All dimensions are in inches.

350 (FL-FS, ZFL-ZFS)

¾-INCH SPACING - ALUMINUM

Available 35° Deflection Models:
350FL
350FS

Available 0° Deflection Models:
350ZFL
350ZFS

Products Include:
- Material: Roll-formed aluminum for sizes up to 24 x 24 inches; extruded aluminum for larger sizes.
- Standard Finish - #26 White.
- Available Border Types:
  #1 - Surface Mount
  #2 - Snap-In
  #3 - Lay-In
  #4 - Spline
- Countersunk Screw Holes.
- #8 x 1¼-inch long Phillips Flat Head Sheet Metal Screws Painted White.
- Optional Steel or Aluminum Opposed-Blade Damper.

For Performance Data, please refer to page H28 for 350F and page H30 for 350ZF.

For Suggested Specification, please refer to page H37.

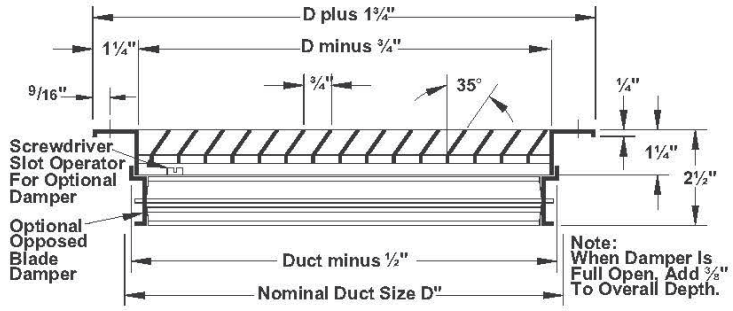
350FL
- Great for areas with high humidity or subject to moisture.
- ¾-inch blade spacing.
- 35° fixed deflection.
- Reinforced corners.
- Blades parallel to the long dimension.

350ZFL
- Great for areas with high humidity or subject to moisture.
- ¾-inch blade spacing.
- 0° fixed deflection.
- Reinforced corners.
- Blades parallel to the long dimension.

350FS
- Same as 350FL with blades parallel to the short dimension.

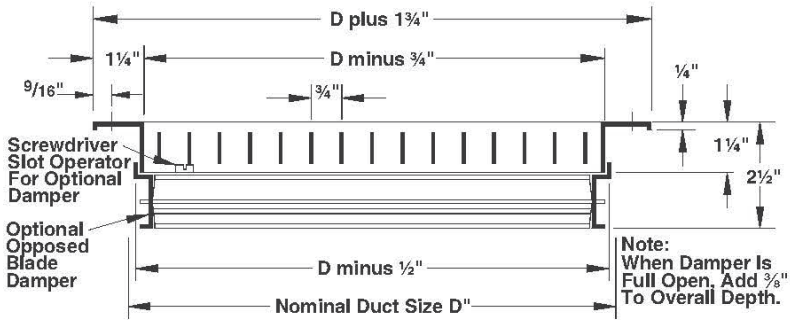
350ZFS
- Same as 350ZFL with front blades parallel to the short dimension.

35° Deflection Models: 350FL/350FS - Border Type 1



Available sizes (D" x D") are 6 x 4 inches through 48 x 48 inches in 1-inch increments.
Odd and fractional sizes are available at additional cost.

0° Deflection Models: 350ZFL/350ZFS - Border Type 1



Available sizes (D" x D") are 6 x 4 inches through 48 x 48 inches in 1-inch increments.
Odd and fractional sizes are available at additional cost.

All dimensions are in inches.

Titus
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Eggcrate Return Grilles

50F, 50F-NT

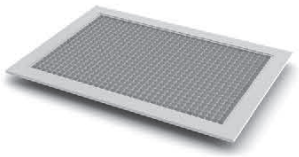
MRI COMPATIBLE

Available Models:

50F	• Aluminum Border & Core
50F-NT	• Aluminum Border & Core - Narrow Tee
50R	• Steel Border with Aluminum Core

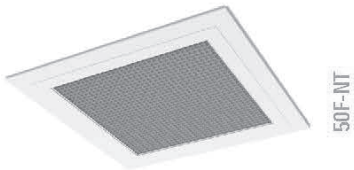
Products Include:

- Standard Finish - #26 White.
- Standard Core
  ½ x ½ x ½ inch.
- Optional Cores: (50F, 50F-NT)
  ½ x ½ x 1 inch
  1 x 1 x 1inch
- Countersunk Screw Holes.
- #8 x 1¼-inch long Phillips Flat Head Sheet Metal Screws, Painted White.
- Optional Border Types:
  #1 - Surface Mount
  #3 - Lay-In
  #7 - Channel Frame (50F only)
  #8 - Core Only (50F only)
- Optional Steel or Aluminum Opposed-Blade Damper.



50F

- Aluminum border.
- ½ x ½ x ½-inch aluminum core.
- High free area core.
- Minimized pressure drop.
- Matches general appearance of parabolic lighting fixtures.
- MRI compatible

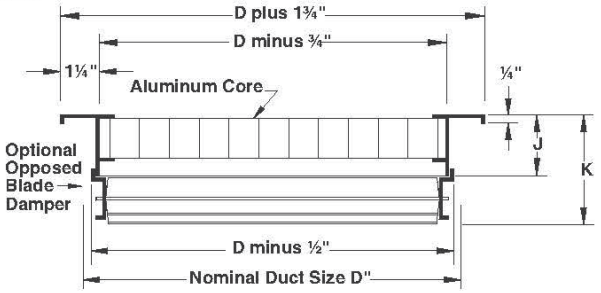


50R

- Aluminum border.
- ½ x ½ x ½-inch aluminum core.
- Can be used in fire-rated applications.

50F-NT
Same as 50F but designed to fit in Narrow Tee Ceiling Grids.

50F Border Type 1

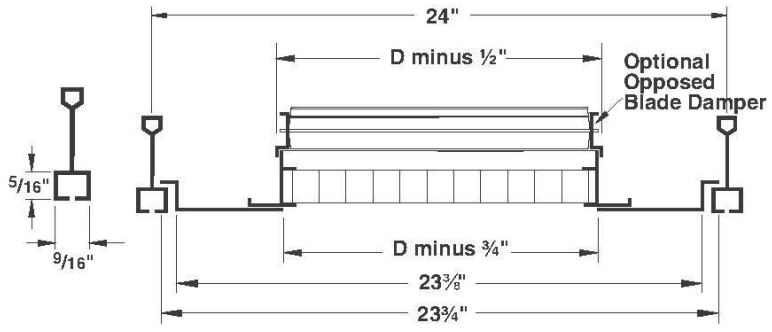


Available sizes (D" x D") are 6 x 4 inches through 48 x 48 inches in 1-inch increments.
Odd and fractional sizes are available at additional cost.

AVAILABLE SIZES

Model	Dimensions	Core Dimensions		
		½" x ½" x ½"	½" x ½" x 1"	1 x 1 x 1
50F	J	1¼	1⅝	1⅝
	K	2½	2 15/16	2 15/16

50F-NT



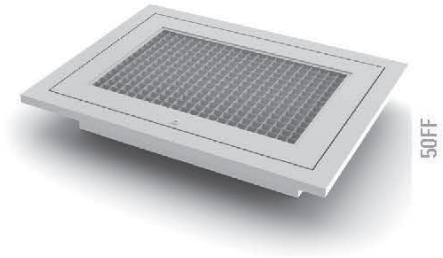
Available sizes (D" x D") are 6 x 4 inches through 48 x 48 inches in 1-inch increments.
Odd and fractional sizes are available at additional cost.

All dimensions are in inches.

50FF

FILTER RETURN

Available Model:
50FF • Aluminum Border & Core - Filter Frame

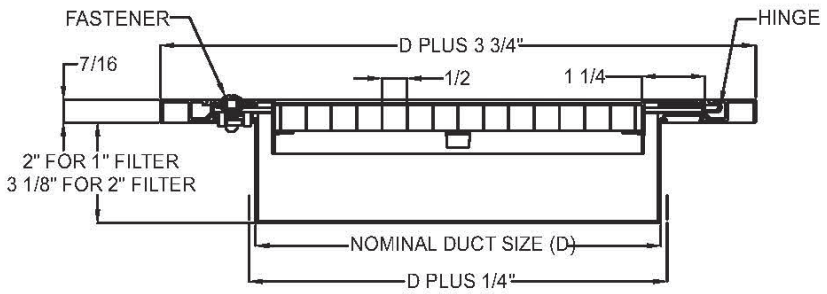


Products Include:
- ½ x ½ x ½-inch Aluminum Eggcrate Core.
- 1 inch Filter Frame.
- Standard Finish - #26 White.
- Available Border Types:
  #1 - Surface Mount
  #3 - Lay-In
- Hidden Screw Holes
- Filter by Others.
-

For Performance Data, please refer to page I15.

50FF
- Aluminum border and filter frame.
- ½ x ½ x ½-inch aluminum core.
- High free area core.
- Minimized pressure drop.
  Matches model 50F in appearance.

50FF - Border Type 1 & 3

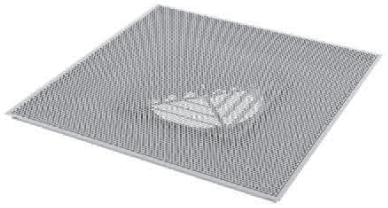


Duct opening should be nominal duct size (D) plus 1/4".
Side Cross-Sectional View:
Border Type 1 (Surface Mount) & Border Type 3 (Lay-in T-Bar).

Please refer to pa
for Hinge Locatio

All dimensions are in inches.

PSS, PSS-DF, PSS-AA



STAR PATTERN - ADJUSTABLE

Available Steel Models:

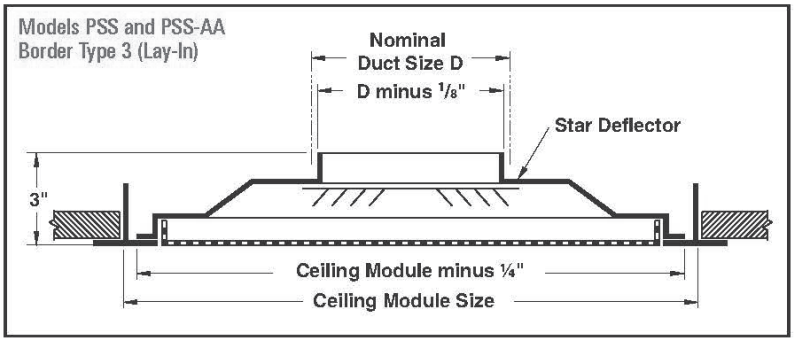
PSS	• Flush Face
PSS-DF	• Drop Face

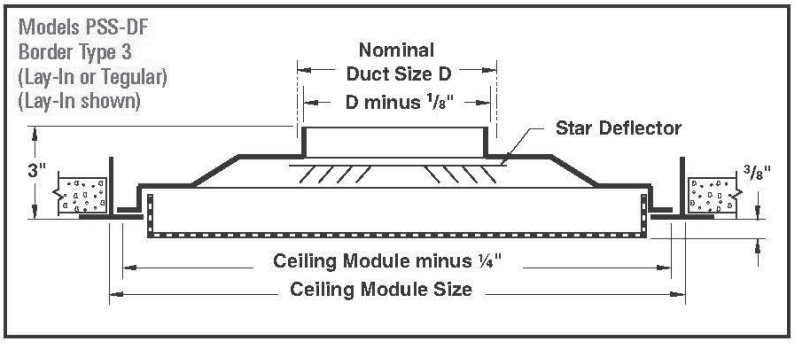
Available Aluminum Model:

PSS-AA	• Flush Face

Products Include:

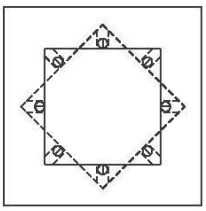
- **Standard Finish - #26 White.**
- Titus Series PSS perforated star diffusers generate a high induction air pattern that maximizes throw.
- PSS diffusers deliver a horizontal blanket of air that adheres to the ceiling even at varying volumes. An excellent choice for VAV systems.
- Deflector is mounted directly under the neck of the diffuser to generate the long-throw star pattern.
- Pressure drop and noise levels are lower than typical curved blade perforated diffusers.
- Vertical air pattern can be obtained by turning all deflector blades inward.
- Three-way pattern or corner blow can be field adjusted with no increase in pressure drop or sound level.
- Available with either side blow or corner blow. Side blow maximizes throw. Corner blow maximizes wall surface coverage in a perimeter installation.
- Can be changed to either side blow or corner blow in the field.
- Round neck with deep collar for easy connection to flexible duct.
- Perforated face is hinged to allow access to the star deflector. The optional damper is adjustable after removal of the star deflector.
- Perforated face has $^{3}/_{16}$" holes on ¼-inch staggered centers.
- Material is heavy gauge steel backpan with steel or aluminum perforated face, according to the model selected.
- Optional factory-installed R-6 foil-backed insulation available for 24 x 24-inch full face models, neck sizes 6-16, borders 1, 2, 3 and 4.



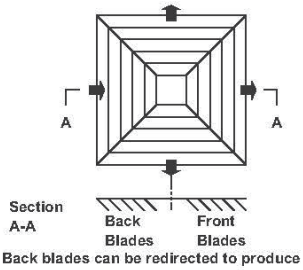


All dimensions are in inches.

FIELD ADJUSTMENTS



Pattern can be changed from side blow to corner blow and vice versa by removing four screws, rotating deflector 45 degrees, and replacing screws.



Back blades can be redirected to produce directional adjustment pattern as shown above.

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Perforated Ceiling Diffusers

PAS, PAR, PDS, PDR

1, 2, 3, OR 4-WAY DISCHARGE PATTERN

Available Steel Models:

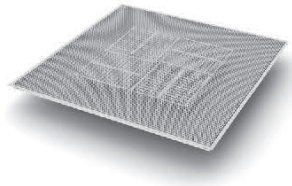
PAS	• Supply • Flush Face
PAR	• Return • Flush Face
PDS	• Supply • Drop Face
PDR	• Return • Drop Face

Available Aluminum Models:

PAS-AA	• Supply • Flush Face
PAR-AA	• Return • Flush Face

Products Include:

- **Standard Finish - #26 White.**
- Titus perforated ceiling diffusers are designed for both heating and cooling applications.
- Excellent performance in variable air volume systems.
- A tight, uniform, horizontal blanket of air protects the ceiling against smudging.
- Return models have the same face and border construction as the supply models, for harmonious appearance in the room.
- Discharge pattern (supply models) can be adjusted to vertical as well as to one-, two-, three- or four-way horizontal. Can be adjusted before or after installation.
- Discharge pattern is easily adjusted by unlatching and dropping the perforated face, then rotating the pattern controllers.
- Dropping the perforated face also gives access to the optional damper.



PAS, PAR, PDS, & PDR

- Perforated face has 3/16-inch diameter holes on ¼-inch staggered centers.
- Inlet collar (neck) has ample depth for easy duct connection.
- Material is heavy gauge steel backpan; steel or aluminum perforated face according to the model selected.
- Optional factory-installed R-6 foil-backed insulation available for 24 x 24-inch full face models, neck sizes 6-16, borders 1, 2, 3 and 4.

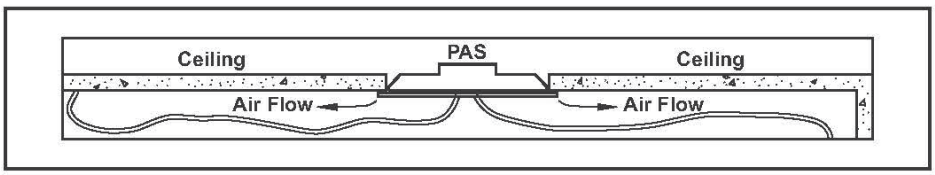
• Available in supply models and return models.

❑ Available in return models only.

•/❑ Shaded areas indicate sizes available with aluminum face.

Nominal Duct Size D	Face or Ceiling Module Size					
	12x12	24x12	16x16	20x20	24x24	48x24
6x6	•	•	•	•	•	•
8x8			•	•	•	•
10x10	❑			•	•	•
12x12					•	•
14x14			❑			
15x15					•	•
18x6		•				
18x18				❑	❑	
22x10		❑				
22x22					❑	
46x22						❑
6" Dia.	•	•	•	•	•	•
8" Dia.			•	•	•	•
10" Dia.			•	•	•	•
12" Dia.				•	•	•
14" Dia.				•	•	•
16" Dia.					•	•

TYPICAL DISCHARGE PATTERN - ELEVATION



All dimensions are in inches.

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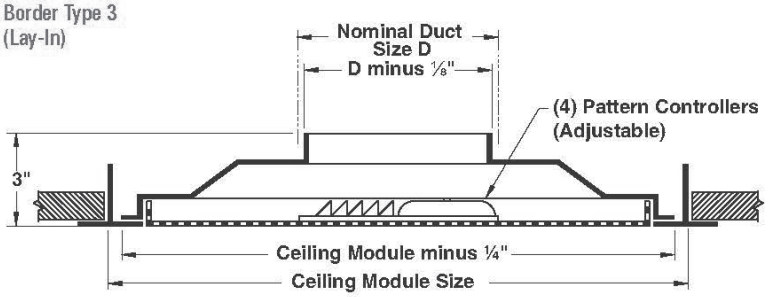
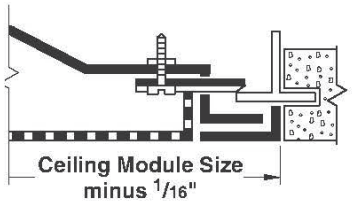
DIMENSIONS

MODELS PAS, PAS-AA - SUPPLY

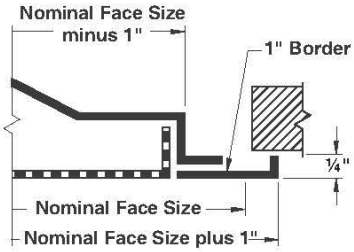
Border Type 3
(Lay-In)



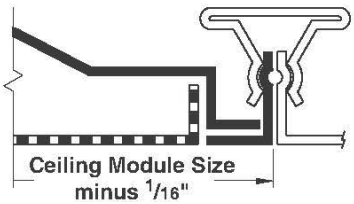
Border Type 4SL
(Spline Side Lock)
Note: 4SL can be installed after ceiling tiles are in place.



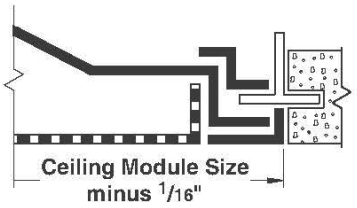
Border Type 1
(Surface Mount)



Border Type 2
(Snap-In)

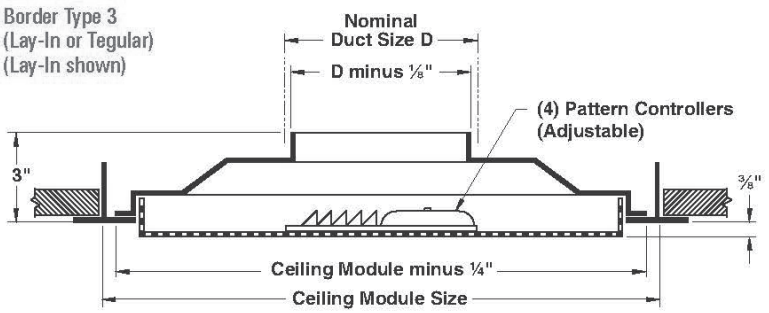


Border Type 4
(Spline)

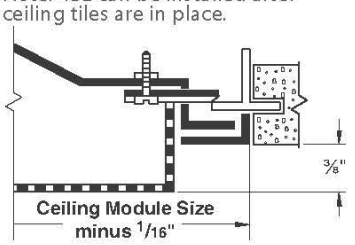


MODEL PDS - SUPPLY

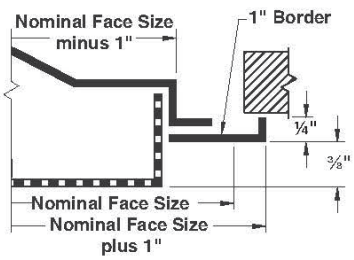
Border Type 3
(Lay-In or Tegular)
(Lay-In shown)



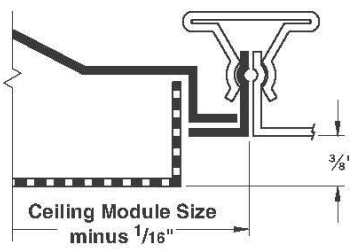
Border Type 4SL
(Spline Side Lock)
Note: 4SL can be installed after ceiling tiles are in place.



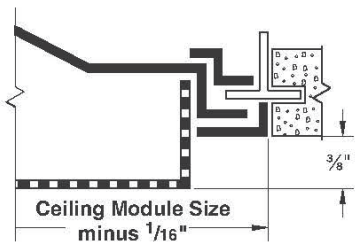
Border Type 1
(Surface Mount)



Border Type 2
(Snap-In)



Border Type 4
(Spline)



All dimensions are in inches.

Titus
The Leader in Air Management

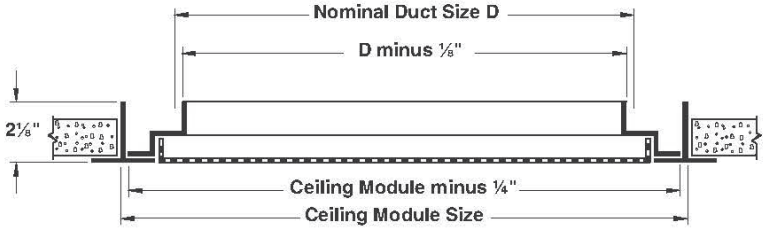
DIMENSIONS

OPTIONAL MOLDED INSULATION BLANKET

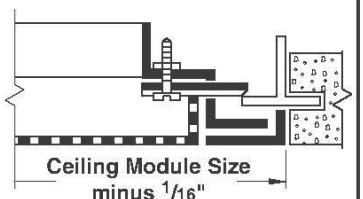
Insulation is R-6 where blanket has the most depth. One-inch clearance on each side of neck is left for insulated duct connection. 24 x 24-inch module size only. Blanket is factory installed.

MODELS PAR, PAR-AA - RETURN

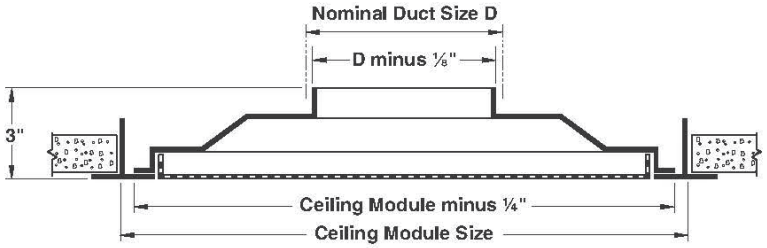
Border Type 3
(Lay-In when duct size = module size - 2)



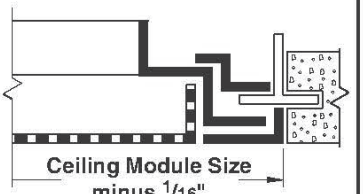
Border Type 4SL
(Spline Side Lock)
Note: 4SL can be installed after ceiling tiles are in place.



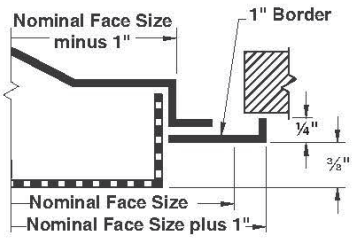
Border Type 3
(Lay-In for other standard duct sizes)



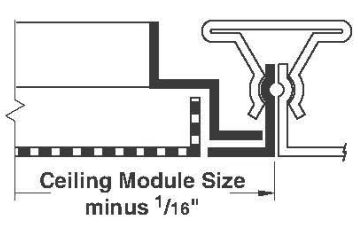
Border Type 4
(Spline)



Border Type 1
(Surface Mount)



Border Type 2
(Snap-In)



All dimensions are in inches.

Titus
The Leader in Air Management

PXP, PXP-DF, PXP-AA

RETURN PANELS

MRI COMPATIBLE

Available Steel Models:

PXP	• Return Panel • Flush Face
PXP-DF	• Return Panel • Drop Face

Available Aluminum Model:

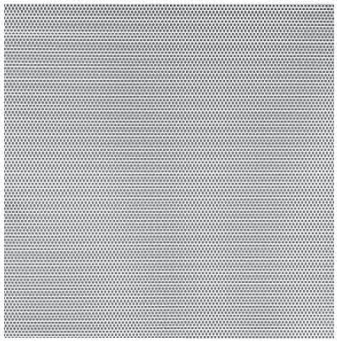
PXP-AA	• Return Panel • Flush Face

Products Include:

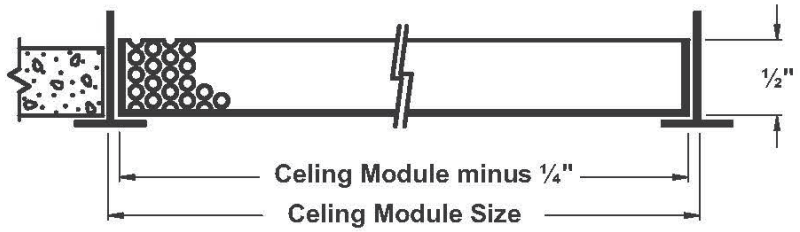
- Standard Finish - #26 White.

For Performance Data and notes, please refer to the PAR, PXP, PMR, PXP-DR, PDR table on page F92.

- Model PXP Series perforated panels are designed for return or exhaust applications.
- Panels match Models PAS, PDS, and PAS-AA supply diffusers in appearance after installation.
- Installed by laying between T-bars.
- Perforated panel has $^{3}/_{16}$-inch diameter holes on ¼-inch staggered centers.
- Material is heavy gauge steel or aluminum.
- MRI compatible (PXP-AA).

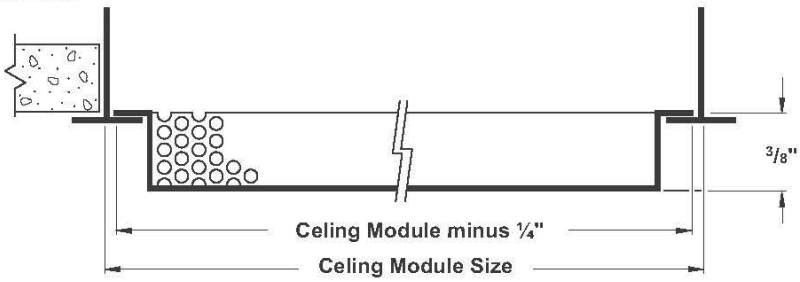


Model PXP and PXP-AA
(Lay-In)



Ceiling Module Sizes Available: 12 x 12, 16 x 16, 20 x 20, 24 x 12, 24 x 24, 48 x 24

Model PXP-DF (Lay-In or Tegular)
(Lay-In shown)



Ceiling Module Sizes Available: 12 x 12, 16 x 16, 20 x 20, 24 x 12, 24 x 24, 48 x 24

All dimensions are in inches.

Titus
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Round Ceiling Diffusers

TMR, TMR-AA

TWO HORIZONTAL
DISCHARGE PATTERNS

Available Models:

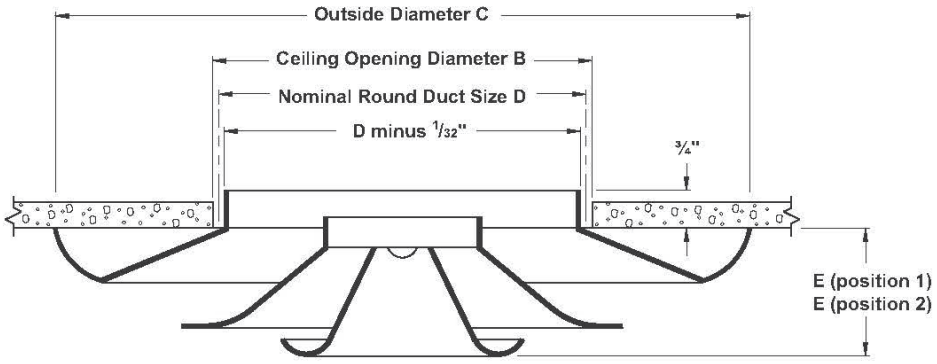
TMR	• Steel
TMR-AA	• Aluminum

Products Include:

- **Standard Finish - #26 White.**
- **Optional Finishes - #01 Aluminum.**
- Models TMR and TMR-AA round ceiling diffusers are designed for cooling applications.
- All sizes have three cones, giving a uniform appearance where different sizes are used in the same area.
- Uniform 360° discharge pattern.
- Excellent performance in variable air volume systems.
- The two horizontal discharge settings allow the diffuser to be adjusted for two different flow rate conditions. At Position 1, maximum capacity is obtained. At Position 2, induction is increased.
- Adjustment achieved by removing the two inner cones as a unit and repositioning six screws.
- Spring lock allows easy removal and replacement of the two inner cones.

TMR, TMR-AA

- Retainer cable provided to allow the inner core assembly to hang during maintenance of diffusers with a neck size of 12 inches or greater.
- Material is steel (TMR) or aluminum (TMR-AA) with steel screws.



Note: Position 1 is with cones down. Position 2 is with cones up.

Nominal Round Duct Size D	B	C	E (Pos. 1)	E (Pos. 2)
6	6½	11⅛	1¾	1⅛
8	8½	14¾	2⅛	1½
10	10½	18¼	2⅞	2⅛
12	12½	22	3⅛	2⅜
14	14½	26	3⅜	2⅝
16	16½	29	4	3¼
18	18½	32½	4¾	3⅞
20 (Note)	20½	36	5⅞	4⅞
24 (Note)	24½	43¼	7¾	6⅝
30 (Note)	30½	53¾	8⅛	6⅝
36 (Note)	36½	64½	10⅛	8⅜

Note: Sizes 20 through 36 are available in steel only.

All dimensions are in inches.

T_3SQ-0

NON-VAV - T_3SQ-0

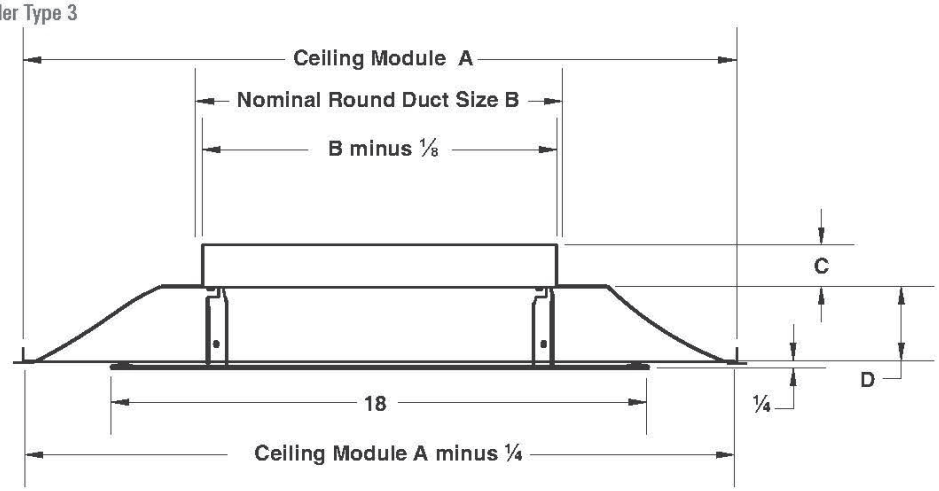
Configurations:

T_3SQ-0 • **Supply/Return**

T_3SQ-0

- The T_3SQ-0 is a non-VAV supply or return diffuser with a center induction cap designed to match the T_3SQ-4 thermal VAV diffusers.
- The curvature of the backpan works with the formed edges of the face panel to deliver a tight horizontal air pattern, without excessive noise or pressure drop over the full range of operation.
- The T_3SQ diffuser is designed to satisfy architectural, as well as engineering criteria. The strong, clean, unobtrusive lines harmonize with the ceiling, without sacrificing performance.
- The standard finish is #26 White.
- The face panel and backpan are constructed from 18-gauge steel. The formed outer edge also assures a straight and level surface.

T_3SQ-0 • Border Type 3



Ceiling Module A	Nominal Round Duct Sizes B	C	D
24	6	1⅛	3⅝
	8	1¼	3¾
	10, 12	1⅜	3⅞

Ceiling Module A	Face Size	Nominal Round Duct Size	Border Type
24 x 24	24 x 24	6, 8, 10, 12	1, 2, 3, 4, NT

All dimensions are in inches.

Titus
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Linear Slot Ceiling Diffusers

ML(R)-37, -38, -39, -40, -TZ

MODULINEAR - ALUMINUM

Available Supply Models:

ML-37	• ½" Slot
ML-38	• ¾" Slot
ML-39	• 1" Slot
ML-40	• 1½" Slot
ML-TZ	• ¾" Slot

Available Return Models:

MLR-37	• ½" Slot
MLR-38	• ¾" Slot
MLR-39	• 1" Slot
MLR-40	• 1½" Slot
MLR-TZ	• ¾" Slot

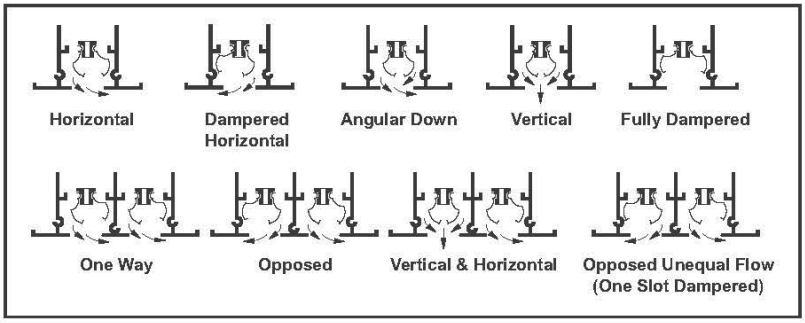
Products Include:

- **Standard Finish - #26 White border. Black pattern controllers.**
- **Optional Finishes: Anodized finishes available.**

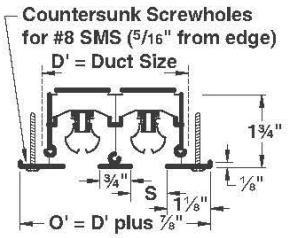
- Titus modulinear diffusers are designed for variable air volume systems. They project a uniform blanket of air that adheres to the ceiling even at low flow rates.
- Both the direction and volume of the discharge air can be adjusted gradually by moving the pattern controllers (see diagrams below).
- Full 180° pattern controller adjustment means there are no "lefts" or "rights." Specifying, ordering, and installing are simplified.
- Model MLR returns are the same as the Model ML supply diffusers except that the pattern controllers are omitted.
- Choice of borders and mounting frames for various types of installations (diagrams below and on next page).

ML, MLR

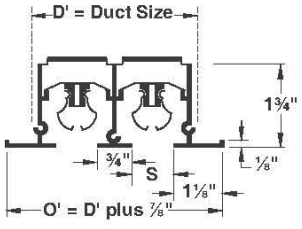
- Available with one to eight slots.
- Ideal for continuous length applications. Multiple sections are shipped with required alignment strips or pins for field installation.
- Maximum one piece section is 6 feet. Lengths greater than 6 feet are furnished in multiple sections.
- Optional Model MLF and MLRF diffusers are designed for field cutting to length and are furnished in 6-foot sections.
- Maximum pattern controller length is 3 feet. Pattern controllers are furnished in multiple sections for a diffuser longer than 3 feet.
- Mounting frames are cut to length and assembled in the field.
- Material is extruded aluminum with steel pattern controllers.
- Optional curving to a 6-foot minimum radius available for architectural enhancement (fixed blades only).



Border Types 1A, 1B both with
- Flange Border
- (1A) Screw Mounting
- (1B) Duct Mounting/ lay-in application, No Screw Holes



Border Type 1A

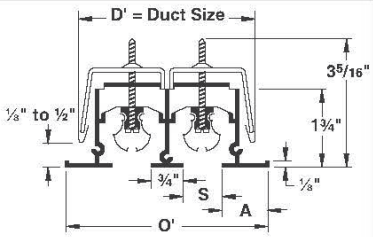


Border Type 1B

FRAME AND BORDER TYPES

Border Types 2A, 2B both with
- Flange Border
- Concealed Mounting

Type	A	O'
2A	1⅛	D' + ¾
2B	⅞	D' + ¼



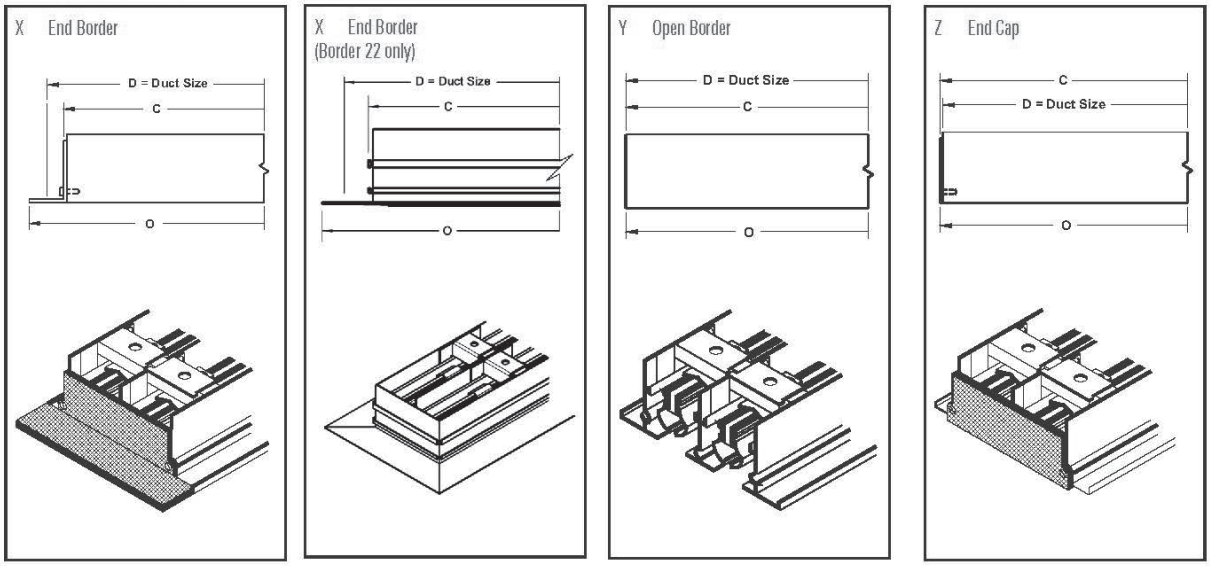
FRAME AND BORDER TYPES

All dimensions are in inches.

Titus
The Leader in Air Management

DIMENSIONS

END FABRICATION



OVERALL LENGTH FOR VARIOUS END FABRICATIONS

Frame and/or Border Type	X X		X Y		X Z		Y Y		Y Z		Z Z	
	X-X		X-Y		X-Z		Y-Y		Y-Z		Z-Z	
	C	O	C	O	C	O	C	O	C	O	C	O
1A, 1B, 9B	D - 1 3/8	D + 3/4	D - 11/16	D + 3/8	D - 5/8	D + 7/16	D	D	D + 1/16	D + 1/16	D + 1/8	D + 1/8
2A, 4, 7A	D - 1 3/8	D + 3/4	D - 11/16	D + 3/8	D - 5/8	D + 7/16	D	D	D + 1/16	D + 1/16	D + 1/8	D + 1/8
3, 6, 11	D - 1 3/8	D	D - 11/16	D	D - 5/8	D + 1/16	D	D	D + 1/16	D + 1/16	D + 1/8	D + 1/8
2B, 7B	D - 1 3/8	D + 1/4	D - 11/16	D + 1/8	D - 5/8	D + 3/16	D	D	D + 1/16	D + 1/16	D + 1/8	D + 1/8
9A	D - 1 3/8	D	D - 11/16	D	D - 5/8	D + 1/16	D	D	D + 1/16	D + 1/16	D + 1/8	D + 1/8
12, 15	D - 11/16	D	D - 5/16	D	D - 1/4	D + 1/16	D	D	D + 1/16	D + 1/16	D + 1/8	D + 1/8
16	D - 1 3/8	D + 3/4	D - 11/16	D + 3/8	N/A	N/A	D	D	N/A	N/A	N/A	N/A
22	D - 1 3/16	D + 1 1/16	D - 19/32	D + 17/32	N/A	N/A	D	D	N/A	N/A	N/A	N/A

DUCT DIMENSION D' (WIDTH) FOR VARIOUS FRAME & BORDER TYPES

No. of Slots	Types 1A, 1B				Types 2A, 2B, 4, 7A, 7B, 16				Types 3, 6, 11				Types 9A, 9B, 12, 15, 22			
	ML/MLR 37	ML/MLR 38	ML/MLR 39	ML/MLR 40	ML/MLR 37	ML/MLR 38	ML/MLR 39	ML/MLR 40	ML/MLR 37	ML/MLR 38	ML/MLR 39	ML/MLR 40	ML/MLR 37	ML/MLR 38	ML/MLR 39	ML/MLR 40
	S = 1/2	S = 3/4	S = 1	S = 1 1/2	S = 1/2	S = 3/4	S = 1	S = 1 1/2	S = 1/2	S = 3/4	S = 1	S = 1 1/2	S = 1/2	S = 3/4	S = 1	S = 1 1/2
1	1 7/8	2 1/8	2 3/8	2 7/8	2	2 1/4	2 1/2	3	2 1/8	2 3/8	2 5/8	3 1/8	1 3/8	1 5/8	1 7/8	2 3/8
2	3 1/8	3 5/8	4 1/8	5 1/8	3 1/4	3 3/4	4 1/4	5 1/4	3 3/8	3 7/8	4 3/8	5 3/8	2 5/8	3 1/8	3 5/8	4 5/8
3	4 3/8	5 1/8	5 7/8	7 3/8	4 1/2	5 1/4	6	7 1/2	4 5/8	5 3/8	6 1/8	7 5/8	3 7/8	4 5/8	5 3/8	6 7/8
4	5 5/8	6 5/8	7 5/8	9 5/8	5 3/4	6 3/4	7 3/4	9 3/4	5 7/8	6 7/8	7 7/8	9 7/8	5 1/8	6 1/8	7 1/8	9 1/8
5	6 7/8	8 1/8	9 3/8	N/A	7	8 1/4	9 1/2	N/A	7 1/8	8 3/8	9 5/8	N/A	6 3/8	7 5/8	8 7/8	N/A
6	8 1/8	9 5/8	11 1/8	N/A	8 1/4	9 3/4	11 1/4	N/A	8 3/8	9 7/8	11 3/8	N/A	7 5/8	9 1/8	10 5/8	N/A
7	9 3/8	11 1/8	12 7/8	N/A	9 1/2	11 1/4	13	N/A	9 5/8	11 3/8	13 1/8	N/A	8 7/8	10 5/8	12 3/8	N/A
8	10 5/8	12 5/8	14 5/8	N/A	10 3/4	12 3/4	14 3/4	N/A	10 7/8	12 7/8	14 7/8	N/A	10 1/8	12 1/8	14 1/8	N/A

All dimensions are in inches.

ML/MLR37 Not Available in Type 22

MP(I)-37, MP(I)-38, MP(I)-39

MODULINEAR DIFFUSER
PLENUMS - STEEL

Available Models:

MP-37	• ½" Slot
MP-38	• ¾" Slot
MP-39	• 1" Slot
MP-40	• 1½" Slot

Special Performance Models:

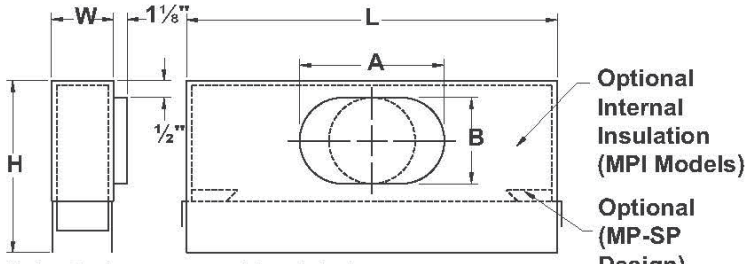
MP-37-SP	• ½" Slot
MP-38-SP	• ¾" Slot
MP-39-SP	• 1" Slot
MP-40-SP	• 1½" Slot
MPI-37	• ½" Slot
MPI-38	• ¾" Slot
MPI-39	• 1" Slot
MPI-40	• 1½" Slot

- Titus Series MP plenums are designed specifically for field attachment of ML or MLR Modulinear diffusers.
- Utilizes the Modulinear diffuser's excellent variable air volume performance. The air stays on the ceiling in a tight, horizontal pattern, even at low volumes.
- Widths available to fit Models ML and MLR Modulinear diffusers with 1, 2, 3 or 4 slots.
- Standard nominal lengths are 24, 36, 48, and 60 inches.
- End caps can be turned up to allow plenums to be installed on continuous runs of ML diffusers.
- Optional internal insulation (MPI and MPI-SP models).
- Optional field mounted inlet dampers are available.
- Material is galvanized steel.
- Optional MP-SP models maximize air diffusion by shortening the throw and widening the spread of the discharge air. This is accomplished by internal baffling. The result is improved comfort in short-throw applications.

With the air directed against an outside wall, the ML diffuser mounted in an MP-SP allows effective handling of the thermal load by thoroughly blanketing the wall or window surface.

See page F27 for a further explanation of the MP-SP performance.

MP, MPI



Note: End caps are not insulated.

H (in.)	LP	HP
	7⅝	10⅝

MODEL MP OR MP-SP PLENUM FOR ML AND MLR DIFFUSERS

Border Types 1A, 1B, 3, 4, 6, 7A, 7B, 11, 9A, 9B, 12, 15

All Border Types

Note: Units with 12 inch inlets are 10⅝ inches high.

Nominal Length N (inches)	Standard Inlets
24	6, 8, 10
36	6, 8, 10
48	6, 8, 10, 12
60	6, 8, 10, 12
72	6, 8, 10, 12

Standard Inlet Size	Dimensions A	Dimensions B
6 Oval	6¼	5¼
8 Oval	9⅜	5¼
10 Oval	12½	5¼
12 Oval	14⅛	7⅞

Border Types 3, 4, 6, 7A, 7B, 11

ML/MLR End Fabrication	L
XX	N - ¼
XY	N - ¼
YY	N - ¼
ZZ	N - ¼

ML/MLR Type	Width Number of Slots MP-37	MP-38	MP-39	MP-40
1	2 3/16	2 7/16	2 11/16	3 3/16
2	3 7/16	3 15/16	4 7/16	5 7/16
3	4 11/16	5 7/16	6 3/16	7 11/16
4	5 15/16	6 15/16	7 15/16	9 15/16
5	7 3/16	8 7/16	9 11/16	N/A
6	8 7/16	9 15/16	11 7/16	N/A
7	9 11/16	11 7/16	13 3/16	N/A
8	10 15/16	12 15/16	14 15/16	N/A

Border Types 3, 4, 6, 7A, 7B, 11 End Fabrication

ML/MLR End Fabrication	L
XX	N - ¼
XY	N - ¼
YY	N - ¼
ZZ	N - ¼

ML/MLR Type	Width Number of Slots 1	2	3	4	5	6	7	8
MP-37	1 7/16	2 11/16	3 15/16	5 3/16	6 7/16	7 11/16	8 15/16	10 3/16
MP-38	1 11/16	3 3/16	4 11/16	6 3/16	7 11/16	9 3/16	10 11/16	12 3/16
MP-39	1 15/16	3 11/16	5 7/16	7 3/16	8 15/16	10 11/16	12 7/16	14 3/16
MP-40	2 7/16	4 11/16	6 15/16	9 3/16	N/A	N/A	N/A	N/A

All dimensions are in inches.

Titus
The Leader in Air Management

Plenum Slot Adjustable Diffusers (continued)

Plenum Slot Diffusers

TBD-80

GASKETED BLADE

1 AND 2 SLOTS, 8 INCHES HIGH

3 AND 4 SLOTS, 11 INCHES HIGH

Available Models:

TBD-80	**• Supply**
TBDI-80	**• Supply • Insulated**

Products Include:

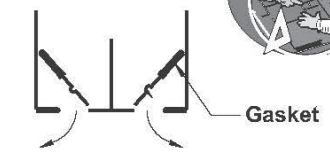
- **Standard Finish - Black pattern controllers and exposed surfaces. White on optional T-bars.**
- The TBD-80 slot diffuser is outstanding for its flexibility in both installation and performance.
- The direction of airflow is adjustable through a full 180° from the face of the diffuser. In addition, the TBD-80 is available with 1 to 4 slots and with three different slot widths, for a broad range of capacities.
- The TBD-80 works with many types of ceiling systems—plaster, splined, and regressed, as well as standard lay-in.
- When set for a horizontal discharge, the TBD-80 projects a tight blanket of air across the ceiling from minimum to maximum flow. TBD-80 provides excellent VAV performance.
- An important advantage of this diffuser is in the gasket edged blade. In the horizontal discharge setting, either right or left, the gasket at the top of the pattern controller seats against the inside of the diffuser plenum wall or slot divider, assuring pure horizontal flow. The pattern controller can also be set for vertical flow.

When you specify Titus TBD-80 diffusers, you get these features:

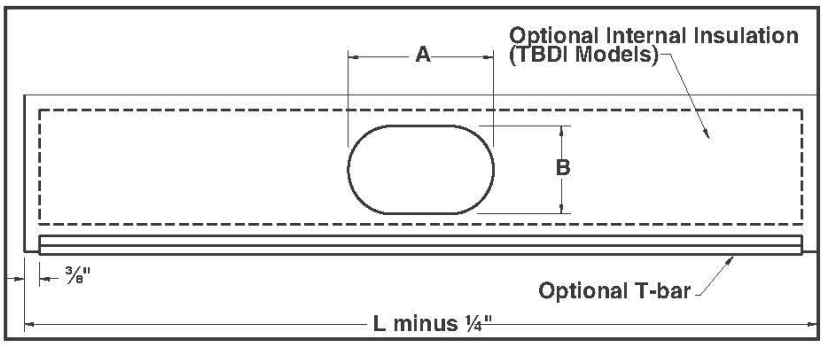
- Standard Diffuser heights are 8 inches for the 1- and 2-slot diffusers; and 11 inches high for the 3- and 4-slot diffusers.
- Double metal thickness at slot face for rigidity and straightness.
- Available with seven arrangements of optional factory installed T-bars.

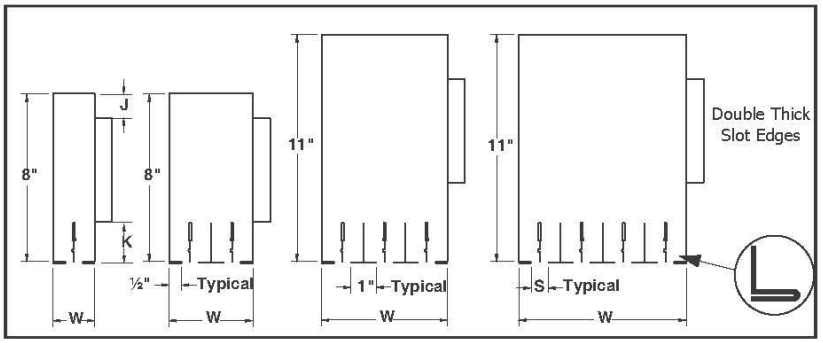
TBD-80

- Choice of ¾-, 1- or 1½-inch slot widths. Choice of one, two, three, or four parallel slots.
- Available in nominal lengths of 24, 36, 48 or 60 inches.
- 24-inch length has one pattern controller per slot. Lengths 36, 48 and 60 inches have two blades per slot, end-to-end.
- Optional internal insulation (end caps are not insulated).
- Optional 11-inch plenum height for 1- and 2-slot units.
- Material is steel with misc. aluminum parts.



Horizontal Discharge Blade Setting





Note: Center T-bars shown above are optional.

All dimensions are in inches.

Slot Width S	Width W			
	1-Slot	2-Slot	3-Slot	4-Slot
¾	1¾	3½	5¼	7
1	2	4	6	8
1½	2½	5	7½	10

Standard Inlet Size	A	B
6 Oval	6¼	5¼
8 Oval	9⅜	5¼
10 Oval	12½	5¼
12 Oval	15⅝	5¼

Nominal Length L	Standard Inlet Sizes
24	6, 8, 10
36	
48	6, 8, 10, 12
60	

(in.)	LP	HP
J	½	2
K	2¼	3¾

T-700

T-700(L/S) - STEEL

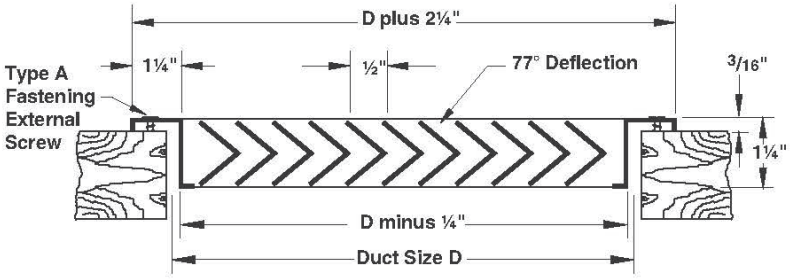
Available Models:
- T-700L
- T-700S

Products Include:
- Standard Finish - #26 White.
- Available Border Types:
  #1 - Surface Mount
  #7 - Channel Frame
- Countersunk Screw Holes.
- #8 x 1¼-inch long Phillips Flat Head Sheet Metal Screws, Painted White.

T-700L
- Sight proof.
- Used in doors and partitions.
- Included v-blades block vision and provide extra strength.
- 20-gauge steel blades.
- Blades parallel to the long dimension.

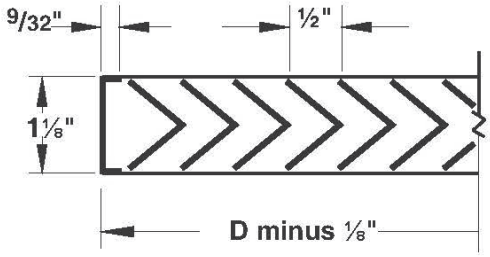
T-700S
- Same as T-700L with blades parallel to the short dimension.

Border Type 1 • Surface Mount



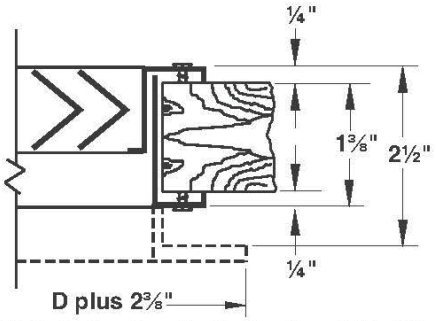
Available sizes (D" x D") Border Type 1 are 6 x 4 inches through 30 x 30 inches in 1-inch increments.

Border Type 7 • Channel Frame



Available sizes (D" x D") Border Type 1 are 6 x 4 inches through 30 x 30 inches in 1-inch increments.

Auxiliary Frame



Available sizes (D" x D") Border Type 1 are 6 x 4 inches through 30 x 30 inches in 1-inch increments.

BASIC FAN LAWS

a = NEW
b = OLD

$CFM_a = CFM_b \times \frac{RPM_a}{RPM_b}$

$RPM_a = RPM_b \times \frac{CFM_a}{CFM_b}$

$SP_a = SP_b \times \left(\frac{RPM_a}{RPM_b}\right)^2$

$HP_a = HP_b \times \left(\frac{RPM_a}{RPM_b}\right)^3$

Friction Loss per 100 ft. $= \frac{\text{System design pressure} \times 100}{\text{Total equiv. length of duct}}$

BASIC AIR CONDITIONING FORMULAS

COOLING	HEATING and/or HUMIDIFYING
$H_S = CFM_T \times 1.08 \times (T_1 - T_2)$	$H_S = CFM_T \times 1.08 \times (T_2 - T_1)$
$H_L = CFM_T \times .68 \times (W_1 - W_2)$	$H_L = CFM_T \times .68 \times (W_2 - W_1)$
$H_T = CFM_T \times 4.5 \times (h_1 - h_2)$	$H_T = CFM_T \times 4.5 \times (h_2 - h_1)$
$T_1 = t_1 + \frac{CFM_O}{CFM_T} \times (t_2 - t_1)$ (1)	$T_1 = t_1 - \frac{CFM_O}{CFM_T} \times (t_1 - t_2)$ (2)
(1) If duct heat gain is a factor, add to T_1: $\frac{\text{Duct Heat Gain (Btuh)}}{CFM_T \times 1.08}$	(2) If duct heat loss is a factor, subtract from T_1: $\frac{\text{Duct Heat Loss (Btuh)}}{CFM_T \times 1.08}$
$T_2 = T_1 - \frac{H_S}{CFM_T \times 1.08}$	$T_2 = T_1 + \frac{H_S}{CFM_T \times 1.08}$
$CFM_T = \frac{H_S \text{ (total)}}{1.08 \times (T_1 - T_2)}$ OR $CFM_T = \frac{H_S \text{ (internal)}\ (3)}{1.08 \times (t_1 - T_2)}$	$CFM_T = \frac{H_S}{1.08 \times (T_2 - T_1)}$ (3) Sensible load of outside air not included.
[1] $h_2 = h_1 - \frac{H_T}{CFM_T \times 4.5}$	[2] $h_2 = h_1 + \frac{H_T}{CFM_T \times 4.5}$

Leaving Air W.B. Temperature: Refer to Enthalpy Table and read W.B. temperature corresponding to enthalpy of leaving air (h_2).
For Cooling see [1] For Heating see [2]

FOLLOWING FORMULA APPLY FOR EITHER COOLING OR HEATING and/or HUMIDIFYING

$CFM_T = \frac{N_T V}{60 \text{ min/hr}}$	$N_T = \frac{CFM_T \text{ (60 min/hr)}}{V}$
$CFM_O = \frac{N_O V}{60 \text{ min/hr}}$	$N_O = \frac{CFM_O \text{ (60 min/hr)}}{V}$

LEGEND FOR FORMULAS

CFM_T = Total airflow cu. ft./min.
CFM_O = Outdoor air cu. ft./min.
N_T = Total air changes/hr.
N_O = Outdoor air changes/hr.
V = Volume of space cubic feet
H_T = Total heat Btuh
H_S = Sensible heat Btuh
H_L = Latent heat Btuh
$*h_1$, $*h_2$ = Enthalpy or total heat of - entering air Btu/lb. - lvg. air Btu/lb. dry air
T_1 = Temperature of entering air °F.D.B.
T_2 = Temperature of leaving air °F.D.B.
t_1 = Indoor design temperature °F.D.B.
t_2 = Outdoor design temperature °F.D.B.
W_1, W_2 = Grains of water per lb. of dry air @ entering cond. leaving cond.

* See Enthalpy of air (Total Heat Content of Air) Table for exact values.

SUGGESTED LIMITS FOR ROOM LOUDNESS

Sones	DBA	Areas
1.3 - 4	32 - 48	Private homes (rural and suburban)
1.7 - 5	36 - 51	Conference rooms
2 - 6	38 - 54	Hotel rooms, libraries, movie theaters, executive offices
2.5 - 8	41 - 58	Schools and classrooms, hospital wards, and operating rooms
3 - 9	44 - 60	Court rooms, museums, apartments, private homes (urban)
4 - 12	48 - 64	Restaurants, lobbies, general open offices, banks
5 - 15	51 - 67	Corridors and halls, cocktail lounges, washrooms and toilets
7 - 21	56 - 72	Hotel kitchens and laundries, supermarkets
12 - 36	64 - 80	Light machinery, assembly lines
15 - 50	67 - 84	Machine shops
25 - 60	74 - 87	Heavy machinery

From AMCA Publication 302 (Application of Sone Ratings for Non Ducted Air Moving Devices with Room-Sone-dBA correlations).

DERIVATIONS OF AIR CONSTANTS

Air constants below apply to Std. Dry Air at 70°F and 14.7 P.S.I.A. (29.92 in. mercury column). They may be used in most cooling calculations unless extremely precise results are desired.

4.5 (to convert CFM to lbs./hr.)

$4.5 = \frac{60 \text{ Min./hr.}}{13.33}$ or $60 \times .075$

where 13.33 is the specific volume of std. air (cu. ft./lb.) and .075 = density (lbs./cu. ft.)

$1.08 = \frac{.24 \times 60}{13.33}$ or $.24 \times 4.5$

.24 Btu = specific heat of std. air (BTU/LB/°F)

$.68 = \frac{60}{13.33} \times \frac{1060}{7000}$ or $4.5 \times \frac{1060}{7000}$

Where: 1060 = Avg. Latent Heat of water vapor (BTU/LB)
7000 = Grains per lb.

SUGGESTED AIR CHANGES FOR PROPER VENTILATION

$CFM = \frac{\text{Room Volume}}{\text{min/chg}}$

Room Volume = L x W x H (of room)

Min/Chg	Areas
3 - 10	Assembly Hall
2 - 4	Attic
3 - 10	Auditorium
2 - 3	Bakery
2 - 4	Bar
12 - 18	Barn
1 - 3	Boiler Room
3 - 7	Bowling Alley
3 - 5	Cafeteria
4 - 10	Church
4 - 6	Classroom
3 - 7	Club Room
3 - 7	Dance Hall
4 - 8	Dining Room
2 - 5	Dry Cleaner
1 - 3	Engine Room
2 - 7	Factory
1 - 5	Foundry
2 - 10	Garage
2 - 5	Generator Room
3 - 8	Gymnasium
1 - 5	Kitchen
2 - 5	Laboratory
2 - 4	Laundry
3 - 6	Machine Shop
3 - 8	Mill
2 - 8	Office
2 - 5	Packing House
1 - 2	Projection Room
2 - 8	Recreation Room
2 - 6	Residence
5 - 10	Restaurant
5	Rest Room
3 - 7	Store
1 - 5	Transfer Room
3 - 10	Warehouse

RECOMMENDED AND MAXIMUM DUCT VELOCITIES

(MAXIMUM VELOCITIES SHOWN IN PARENTHESES)

DESIGNATION	RESIDENCES	SCHOOLS, THEATERS, PUBLIC BUILDINGS	INDUSTRIAL BUILDINGS
	THESE VELOCITIES ARE FOR TOTAL FACE AREA		
Filters	250 (300)	300 (350)	350 (350)
Heating Coils	450 (500)	500 (700)	600 (700)
Cooling Coils	450 (450)	500 (600)	600 (600)
Air Washers	500 (500)	500 (500)	500 (500)
	THE FOLLOWING VELOCITIES ARE FOR NET FREE AREA		
Fan Outlets	1000-1600 (1700)	1300-2000 (1500-2200)	1600-2400 (1700-2800)
Main Ducts	700-900 (800-1200)	1000-1300 (1100-1600)	1200-1800 (1300-2200)
Branch Ducts	600 (700-1000)	600-900 (800-1300)	800-1000 (1000-1800)
Branch Risers	500 (650-800)	600-700 (800-1200)	800 (1000-1600)

Holden & Associates offers you products from these manufacturers:

Manufacturer	Product Description
Acme Engineering	Gas Detection Monitors: CO, CO2, NO2, Ammonia, VOC
ADP	Gas Fired Unit Heaters
Aero / Dyne Co.	Airfoil Air Duct Turning Vanes
AJ Manufacturing	Door Grilles, Stainless Steel Air Distribution
Air Balance, Inc.	Access Doors; Fire, Fire/Smoke And Smoke Dampers
American Warming and Ventilating	Dampers And Louvers
ATCO (Flex Air Division)	Flexible Duct
Babcock Davis	Smoke Vents and Hatches
Broan	Bathroom Exhaust Fans
Carroll Manufacturing	Commercial Kitchen Exhaust Air Purification Systems
Commercial Acoustics	Sound Attenuators & Acoustical Fan Enclosures
Crown Products	Duct Take-Off Fittings & Sheet Metal Accessories
Curbs Plus	Roof Curbs
Ductmate	Duct Access Doors and Sheet Metal Accessoires
FabricAir	Fabric Duct Systems
FlexMaster	Flexable ductwork, accoustical flex, sheet metal fittings
Greenheck	Commercial Kitchen Hood Systems (UL Listed & Classified)
Greenheck	Dampers & Louvers
Greenheck	Energy Recovery Units
Greenheck	Ventilation Fans; Laboratory Fume Exhaust Fan Systems
Greenheck	Gas Fired And Electric Make-Up Air Units
Greenheck	Motor Starters
Hamlin Sheet Metal	Spiral And Oval Duct; Single And Double Wall Construction
HRS	Commercial & Industrial Ceiling Paddle Fans
Kee's	Specialty Air Distribution Products
Mars	Air Doors; Fly Fans
Macro Air	Large Ceiling Paddle Fans
Milcor	Smoke Vents and Hatches
National Garage	Garage & Fume Ventilation Systems
Neptronic	Commercial/Industrial Humidification Systems & Electric Duct Heaters
Panasonic	Ceiling Exhaust Fans
Precision Air	Engineered Operating Room Ceiling Systems
Q'mark	Electric Heat
Reddi	Electric Heat
Roof Products and Systems	Roof curbs, pipe portals and roof accessories
Semco	Duct and Acoustical Products
Space Ray	Infrared Gas Heat
Spunstrand	Commercial HVAC Underground Ductwork
Titus HVAC	Air Distribution, Security Grilles, Hospital Operating Room Systems
Titus HVAC	VAV And Fan Powered Terminal Units; Fan Coil Units
Titus HVAC	Underfloor Ventilation, Displacement Ventilation Systems & Chilled Beams
Tri-Dim	Air Filtration
United Enertech	Sheet Metal Specialties
Valent	100 % Outdoor Air Units
Vent Aire	Vehicle Exhaust Removal and Fume Extraction Systems
Vent Products Inc.	Louvers, Dampers & Penthouses
Vulcan	Electric, Steam & Hot Water Heating Equipment
Ward Industries	Access Doors For Round Duct