

HILTI

**Installation Technical
Manual**

Typical Applications

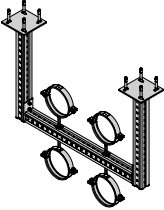
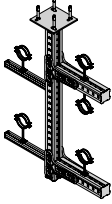
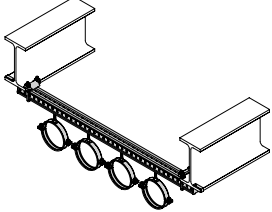
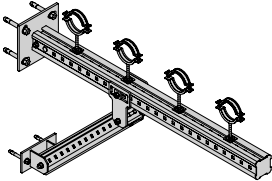
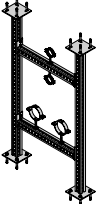

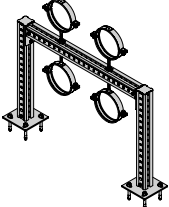
**Typical Product Line
Applications**

MIQ System

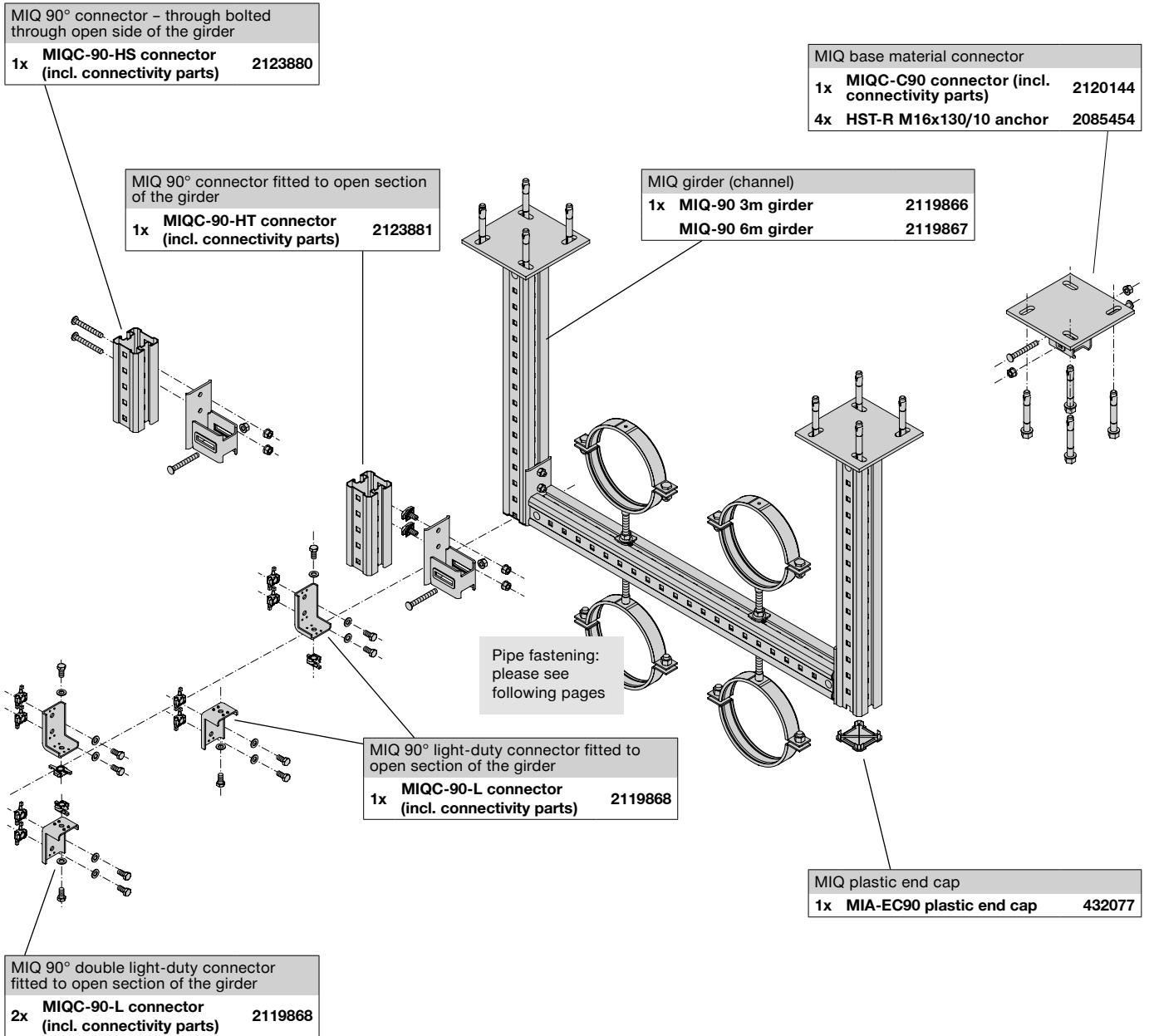


Version 1.0 | September 2015

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Trapeze Frame On Concrete - Options

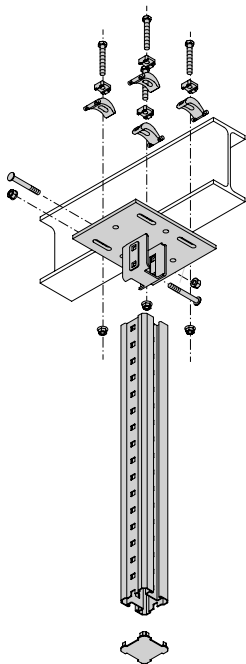


| Application description | Application | Product lines | Base material |
|--|-------------|---------------|---------------|
| Trapeze frame | | MIQ System | Concrete |
| General comments ■ These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations | | Anchors | |
| | | Accessories | |

Trapeze Frame On Steel - Options

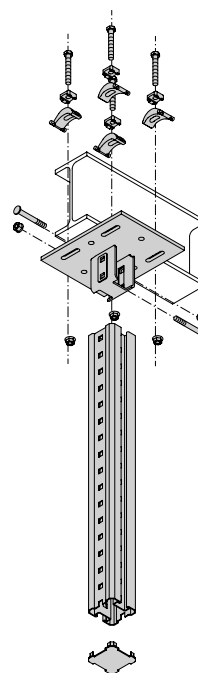
Connection of the vertical uprights to flanges of steel beam

Steel beam parallel to trapeze



| MIQ vertical upright connection to flange of steel beam | |
|---|---------|
| Connector for flange width 75-165mm | |
| 1x MIQC-S90-AP connector | 2120271 |
| Connector for flange width 165-235mm | |
| 1x MIQC-S90-BP connector | 2120273 |
| Beam clamps | |
| 4x MI-SGC M12 beam clamp | 233859 |
| Girder (channel) | |
| 1x MIQ-90 3m girder | 2119866 |
| Plastic end cap | |
| 1x MIA-EC90 plastic end cap | 432077 |

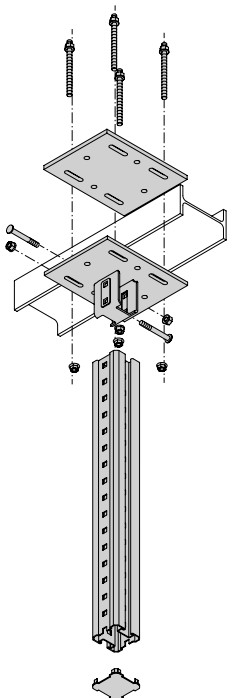
Steel beam perpendicular to trapeze



| MIQ vertical upright connection to flange of steel beam | |
|---|---------|
| Connector for flange width 75-165mm | |
| 1x MIQC-S90-AC connector | 2120270 |
| Connector for flange width 165-235mm | |
| 1x MIQC-S90-BC connector | 2120272 |
| Beam clamps | |
| 4x MI-SGC M12 beam clamp | 233859 |
| Girder (channel) | |
| 1x MIQ-90 3m girder | 2119866 |
| Plastic end cap | |
| 1x MIA-EC90 plastic end cap | 432077 |

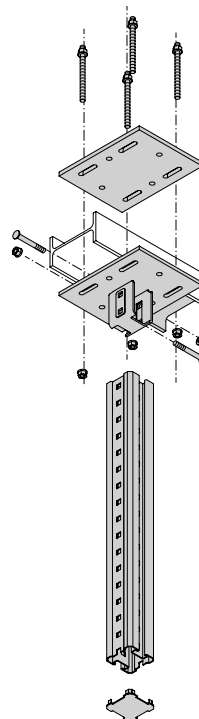
Connection of the vertical uprights to web of steel beam by boxing the profile

Steel beam parallel to trapeze



| MIQ vertical upright connection to web of steel beam | |
|--|---------|
| Connector for web width 75-165mm | |
| 1x MIQC-S90-AP connector | 2120271 |
| 1x MIQB-SA back plate | 2123565 |
| Connector for web width 165-235mm | |
| 1x MIQC-S90-BP connector | 2120273 |
| 1x MIQB-SB back plate | 2123566 |
| Through bolts | |
| 4x AM12x1000-8.8 HDG threaded rod | 419103 |
| Securing nuts | |
| 4x M12-F-SL WS3/4 self-locking nut | 382897 |
| Girder (channel) | |
| 1x MIQ-90 3m girder | 2119866 |
| Plastic end cap | |
| 1x MIA-EC90 plastic end cap | 432077 |

Steel beam perpendicular to trapeze



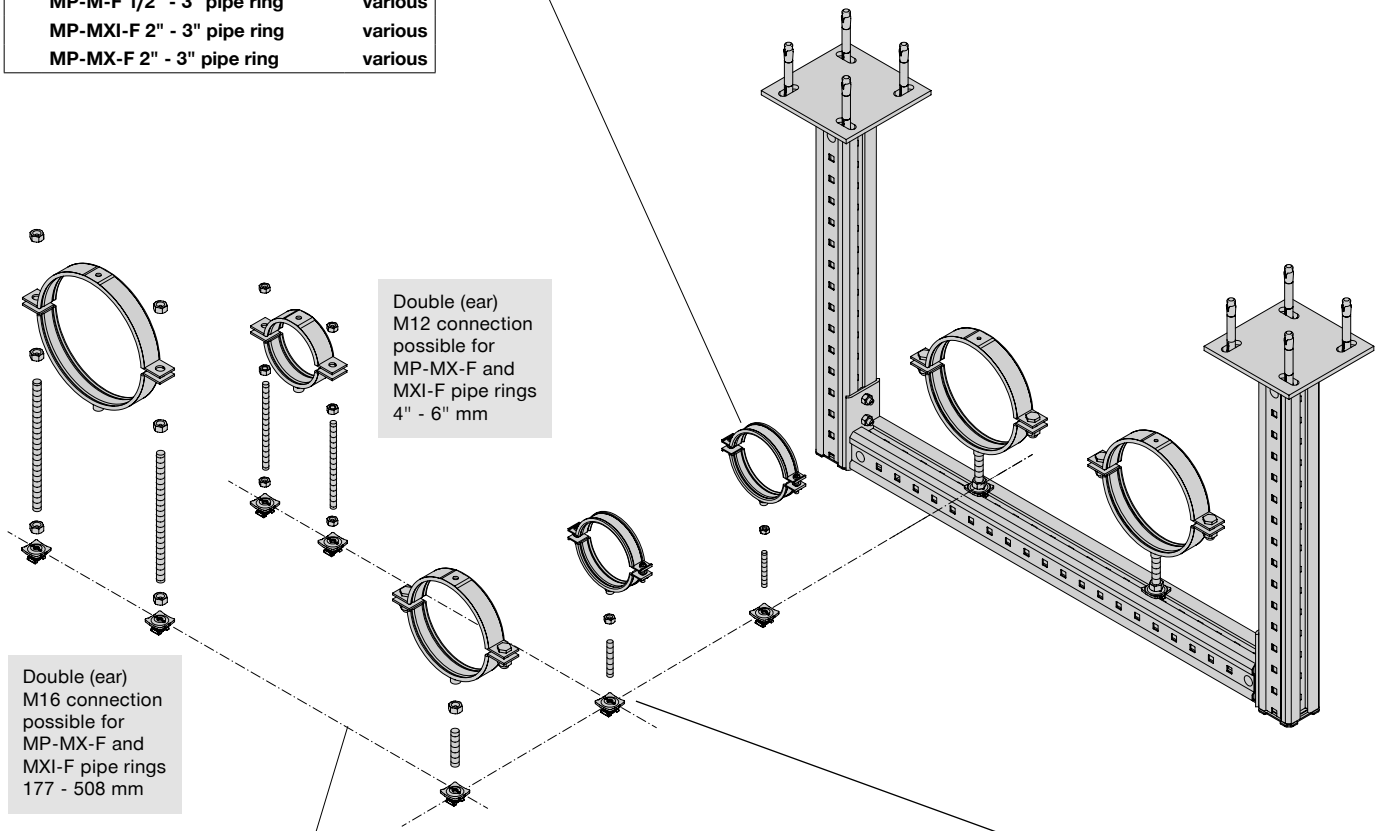
| MIQ vertical upright connection to web of steel beam | |
|--|---------|
| Connector for web width 75-165mm | |
| 1x MIQC-S90-AC connector | 2120270 |
| 1x MIQB-SA back plate | 2123565 |
| Connector for web width 165-235mm | |
| 1x MIQC-S90-BC connector | 2120272 |
| 1x MIQB-SB back plate | 2123566 |
| Through bolts | |
| 4x AM12x1000-8.8 HDG threaded rod | 419103 |
| Securing nuts | |
| 4x M12-F-SL WS3/4 self-locking nut | 382897 |
| Girder (channel) | |
| 1x MIQ-90 3m girder | 2119866 |
| Plastic end cap | |
| 1x MIA-EC90 plastic end cap | 432077 |

| Application description | Application | Product lines | Base material |
|---|-------------|------------------|---------------|
| Trapeze frame | | MIQ System | Steel |
| General comments | | MI System clamps | |
| | | Accessories | |
| <ul style="list-style-type: none"> These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations | | | |

Trapeze Frame - Options

Fixed pipe ring connections (no expansion)

| MIQ pipe ring connection for M10 | | |
|----------------------------------|--|---------|
| Saddle nut | | |
| 1x MQA-M10-F saddle nut | | 304139 |
| Hexagonal nut | | |
| 1x M10-F hex nut | | 304765 |
| Threaded rod | | |
| 1x AM10x1000-F 4.8 t-rod | | 304773 |
| Pipe rings for M10 | | |
| 1x MP-MI-F 1/2" - 3" pipe ring | | various |
| MP-M-F 1/2" - 3" pipe ring | | various |
| MP-MXI-F 2" - 3" pipe ring | | various |
| MP-MX-F 2" - 3" pipe ring | | various |



| MIQ pipe ring connection for M16 | | |
|-----------------------------------|--|---------|
| Saddle nut | | |
| 1x MQA-M16-F saddle nut | | 304141 |
| Hexagonal nut | | |
| 1x M16-F hex nut | | 304767 |
| Threaded rod | | |
| 1x AM16x1000-F 4.8 t-rod | | 304776 |
| Pipe rings for M16 | | |
| 1x MP-MXI-F 4" - 508 mm pipe ring | | various |
| MP-MX-F 4" - 508 mm pipe ring | | various |

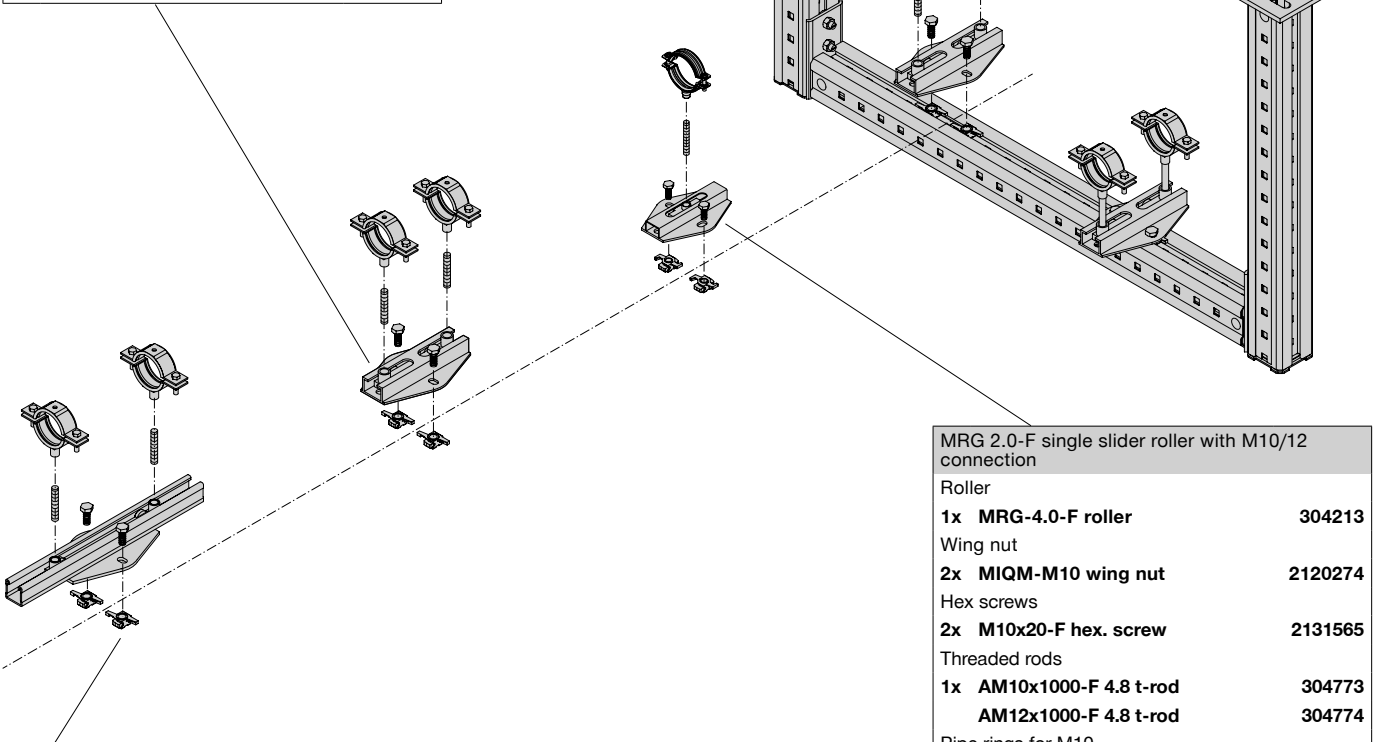
| MIQ pipe ring connection for M12 | | |
|----------------------------------|--|---------|
| Saddle nut | | |
| 1x MQA-M12-F saddle nut | | 304140 |
| Hexagonal nut | | |
| 1x M12-F hex nut | | 304766 |
| Threaded rod | | |
| 1x AM12x1000-F 4.8 t-rod | | 304774 |
| Pipe rings for M12 | | |
| 1x MP-MXI-F 2" - 3" pipe ring | | various |
| MP-MX-F 2" - 3" pipe ring | | various |

| Application description | Application | Product lines | Base material |
|--|-------------|-----------------|---------------|
| Trapeze frame | | MIQ System | Concrete |
| General comments ■ These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations | | Pipe rings | Steel |
| | | F - Accessories | |

Trapeze Frame - Options

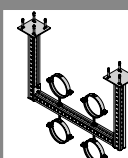
Expansion pipe ring connections

| | | |
|--|--------------------------------|---------|
| MRG-D6-F double slider roller with M12/16 connection | | |
| Roller | | |
| 1x | MRG-D6-F roller | 304214 |
| Wing nut | | |
| 2x | MIQM-M12 wing nut | 2120275 |
| Hex screws | | |
| 2x | M12x20-F hex. screw | 2131566 |
| Threaded rods | | |
| 2x | AM12x1000-F 4.8 t-rod | 304774 |
| | AM16x1000-F 4.8 t-rod | 304776 |
| Pipe rings for M12 | | |
| 2x | MP-MXI-F 2" - 3" pipe ring | various |
| | MP-MX-F 2" - 3" pipe ring | various |
| Pipe rings for M10 and M12 | | |
| 2x | MP-MXI-F 4" - 508 mm pipe ring | various |
| | MP-MX-F 4" - 508 mm pipe ring | various |



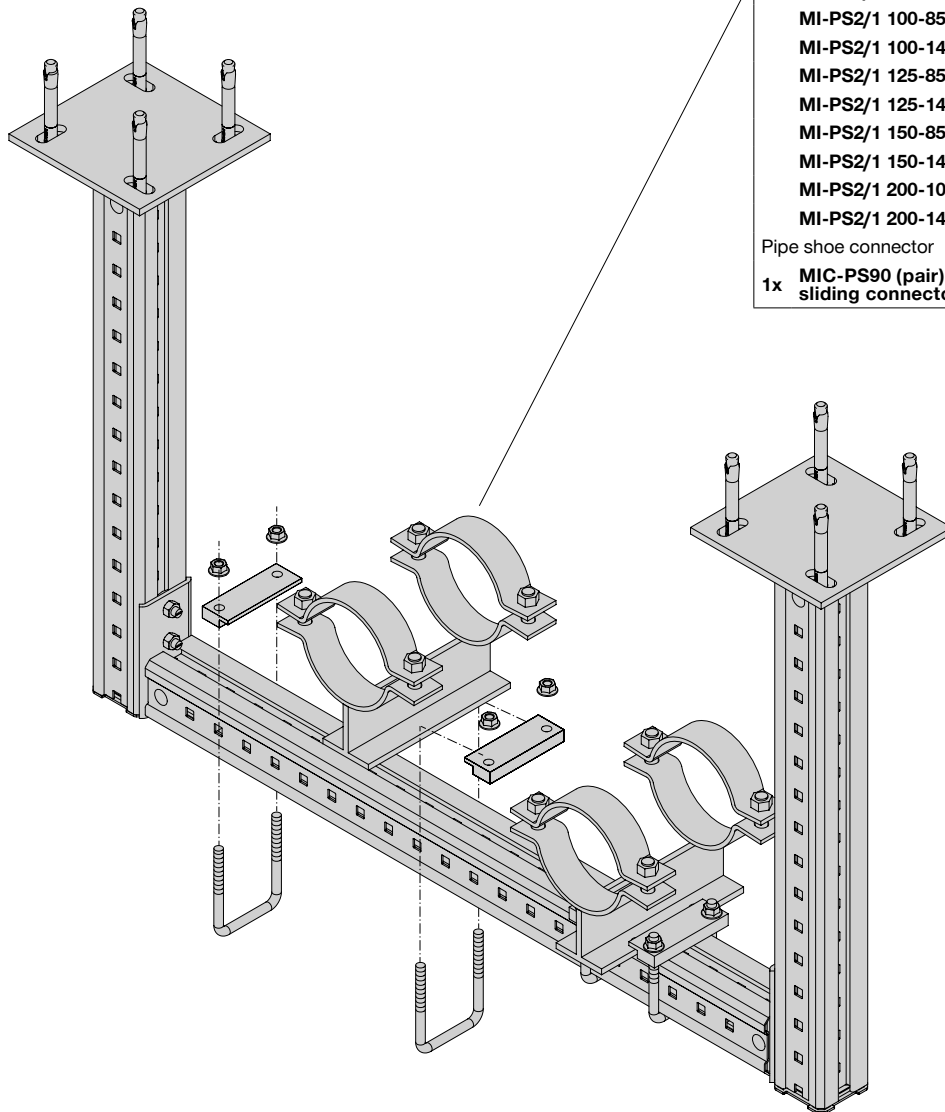
| | | |
|--|-------------------|----------|
| MRG-D225-F double slider roller with M12/16 connection | | |
| Roller | | |
| 1x | MRG-D225-F roller | specials |
| The rest of the BOM the same as in case of MRG-D6-F | | |

| | | |
|---|-----------------------------|---------|
| MRG 2.0-F single slider roller with M10/12 connection | | |
| Roller | | |
| 1x | MRG-4.0-F roller | 304213 |
| Wing nut | | |
| 2x | MIQM-M10 wing nut | 2120274 |
| Hex screws | | |
| 2x | M10x20-F hex. screw | 2131565 |
| Threaded rods | | |
| 1x | AM10x1000-F 4.8 t-rod | 304773 |
| | AM12x1000-F 4.8 t-rod | 304774 |
| Pipe rings for M10 | | |
| 1x | MP-MI-F 1/2" - 3" pipe ring | various |
| | MP-M-F 1/2" - 3" pipe ring | various |
| Pipe rings for M10 and M12 | | |
| 1x | MP-MXI-F 2" - 3" pipe ring | various |
| | MP-MX-F 2" - 3" pipe ring | various |

| Application description | Application | Product lines | Base material |
|-------------------------|--|-----------------|---------------|
| Trapeze frame |  1 | MIQ System | Concrete |
| General comments | | Rollers - F | |
| | | F - Accessories | |

Trapeze Frame - Options

Expansion pipe shoe connection



| Fastening pipe shoes on MIQ girder (channel) | | |
|--|---|--------|
| Pipe shoe | | |
| 1x | MI-PS2/1 25-85 | 304852 |
| | MI-PS2/1 25-140 | 286965 |
| | MI-PS2/1 40-85 | 304853 |
| | MI-PS2/1 40-140 | 286966 |
| | MI-PS2/1 50-85 | 304854 |
| | MI-PS2/1 50-140 | 286967 |
| | MI-PS2/1 65-85 | 304855 |
| | MI-PS2/1 65-140 | 286968 |
| | MI-PS2/1 80-85 | 304856 |
| | MI-PS2/1 80-140 | 286969 |
| | MI-PS2/1 100-85 | 304857 |
| | MI-PS2/1 100-140 | 286970 |
| | MI-PS2/1 125-85 | 304858 |
| | MI-PS2/1 125-140 | 286971 |
| | MI-PS2/1 150-85 | 304859 |
| | MI-PS2/1 150-140 | 286972 |
| | MI-PS2/1 200-107 | 304860 |
| | MI-PS2/1 200-142 | 286973 |
| Pipe shoe connector | | |
| 1x | MIC-PS90 (pair) pipe shoe sliding connector | 304838 |

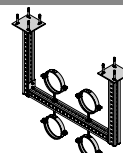
Application description

Trapeze frame

General comments

- These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations

Application



1

Product lines

- MIQ System
- MI System
- Pipe shoes

Base material

Concrete

Trapeze Frame On Concrete - Options

Stiffening options

Bracing on MI section of the profile (in this case lateral)

Bottom brace connection

1x **MIC-U-MA brace connector (pair incl. connectivity parts)** 304806

Brace

1x **MI-90 3m girder (channel) ...m** 304798

Upper brace connection

1x **MIC-CU-MA brace connector (incl. connectivity parts)** 304828

Anchors

2x **HST-R M12x105/10 anchor** 2085453

Bracing on MI section of the profile (in this case axial)

Bottom brace connection

1x **MQP-45-F brace connector** 304164

2x **MQN-HDG plus push button** 387779

1x **MIA-OH90 through bolt** 304889

Brace

1x **MQ-41-F 3m channel ...m** 304099

Upper brace connection

1x **MQP-45-F brace connector** 304164

2x **MQN-HDG plus push button** 387779

Anchor

1x **HST-R M12x105/10 anchor** 2085453

Bracing on MIQ section of profile (in this case lateral)

Bottom brace connection

1x **MQP-45-F brace connector** 304164

2x **MQN-HDG plus push button** 387779

1x **MIQA-T T-bolt (incl. nut)** 2120142

Brace

1x **MQ-41-F 3m channel ...m** 304099

Upper brace connection

1x **MQP-45-F brace connector** 304164

2x **MQN-HDG plus push button** 387779

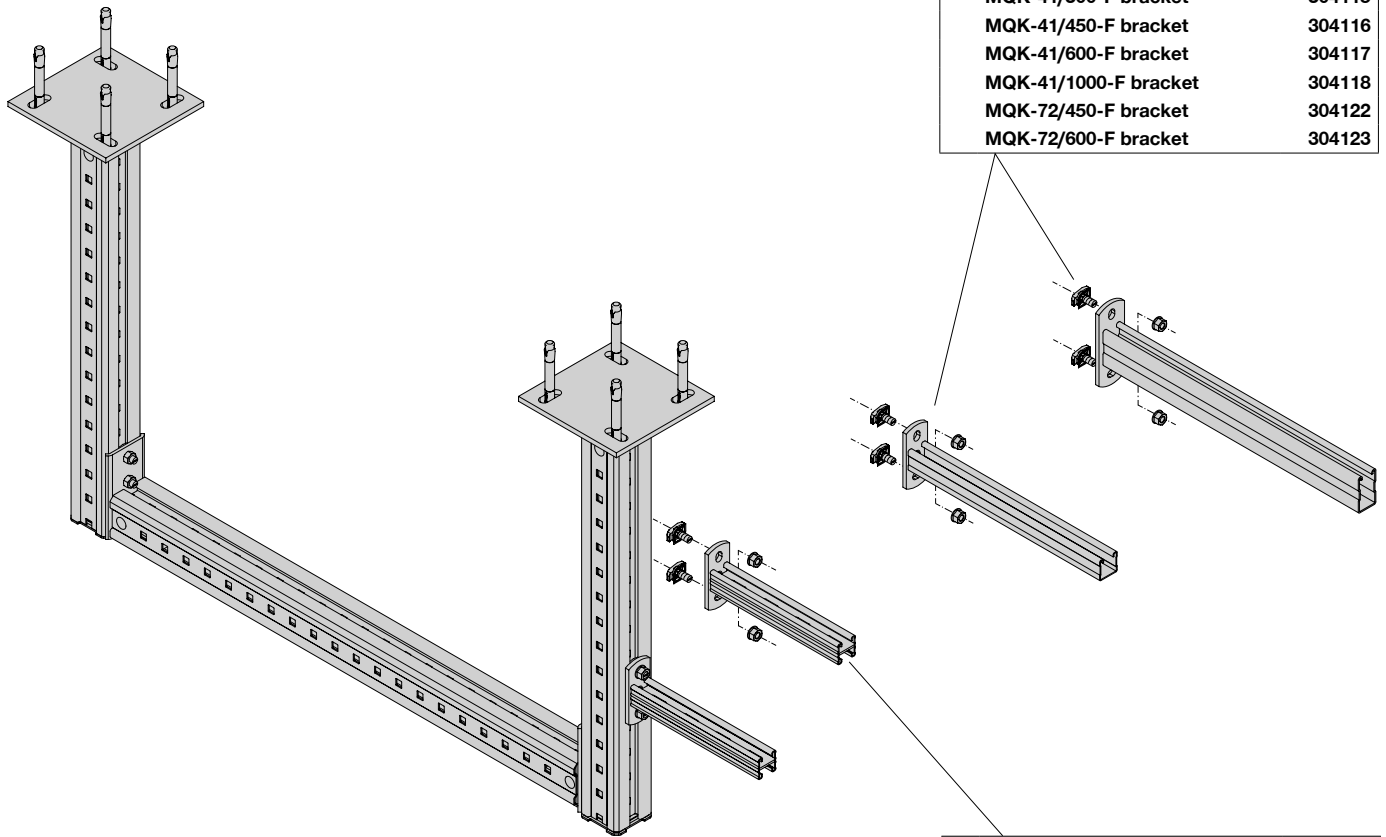
Anchor

1x **HST-R M12x105/10** 2085453

| Application description | Application | Product lines | Base material |
|--|-------------|---------------|---------------|
| Trapeze frame | | MIQ System | Concrete |
| General comments ▪ These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations | | MQ-F System | |
| | | MI System | |

Trapeze Frame - Options

MIQ / MQ System partial system compatibility



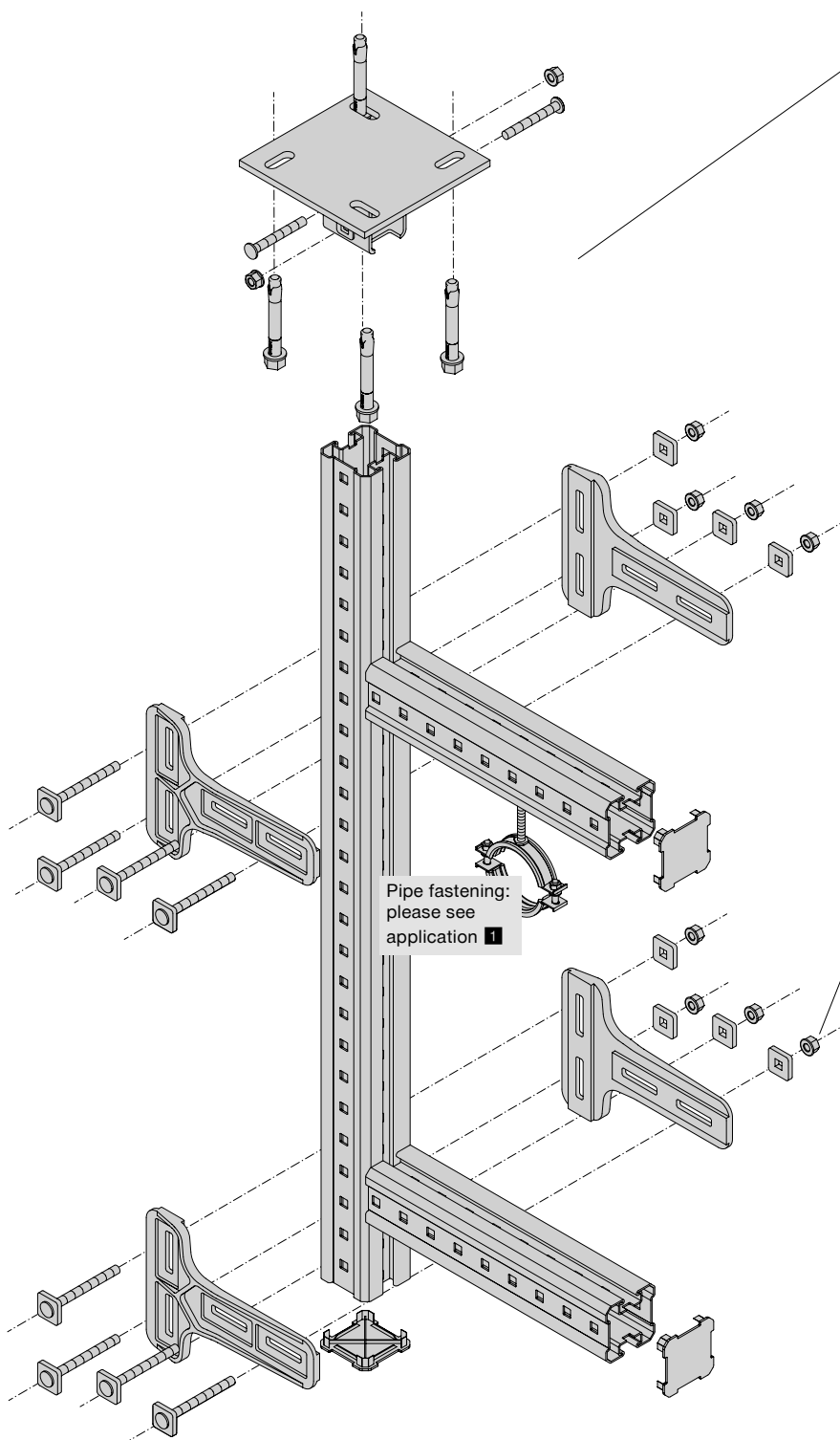
| Single MQK-F brackets fixed to MIQ girder | | |
|---|-------------------------|---------|
| T-bolts | | |
| 2x | MIQA-T T-bolt incl. nut | 2120142 |
| MQK-F bracket | | |
| 1x | MQK-21/300-F bracket | 304113 |
| | MQK-21/450-F bracket | 304114 |
| | MQK-41/300-F bracket | 304115 |
| | MQK-41/450-F bracket | 304116 |
| | MQK-41/600-F bracket | 304117 |
| | MQK-41/1000-F bracket | 304118 |
| | MQK-72/450-F bracket | 304122 |
| | MQK-72/600-F bracket | 304123 |

| Double MQK-F brackets fixed to MIQ girder | | |
|---|-------------------------|---------|
| T-bolts | | |
| 2x | MIQA-T T-bolt incl. nut | 2120142 |
| MQK-F bracket | | |
| 1x | MQK-21 D/300-F bracket | 304124 |
| | MQK-21 D/450-F bracket | 304125 |
| | MQK-21 D/600-F bracket | 304126 |
| | MQK-41 D/1000-F bracket | 304127 |

| Application description | Application | Product lines | Base material |
|---|-------------|---------------|---------------|
| Trapeze frame | | MIQ System | Concrete |
| General comments <ul style="list-style-type: none"> These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations | | MQ-F System | |

Ceiling Tree On Concrete - Options

MIQ ceiling tree with MIQ brackets



| | | |
|--|---|---------|
| MIQ ceiling tree with MIQ brackets BOM for entire application without pipe ring connections | | |
| Base material connector | | |
| 1x | MIQC-C90 base connector (incl. connectivity parts) | 2120144 |
| Anchors | | |
| 4x | HST-R M16x130/10 | 2085454 |
| Vertical upright | | |
| 1x | MIQ-90 3m...m girder | 2119866 |
| Plastic end cap for MIQ girder | | |
| 3x | MIA-EC90 plastic end cap | 432077 |
| Bracket connectors | | |
| 2x | MIC-90-LH bracket connector (pair) without screws | 2048107 |
| Connectivity parts for bracket connector | | |
| 8x | MIA-EH90 through bolt | 304887 |
| 8x | MIA-TP serrated plate | 305707 |
| 8x | M12-F-SL-WS 3/4" lock nut | 382897 |
| Plastic end cap | | |
| | MIA-EC90 plastic end cap | 432077 |

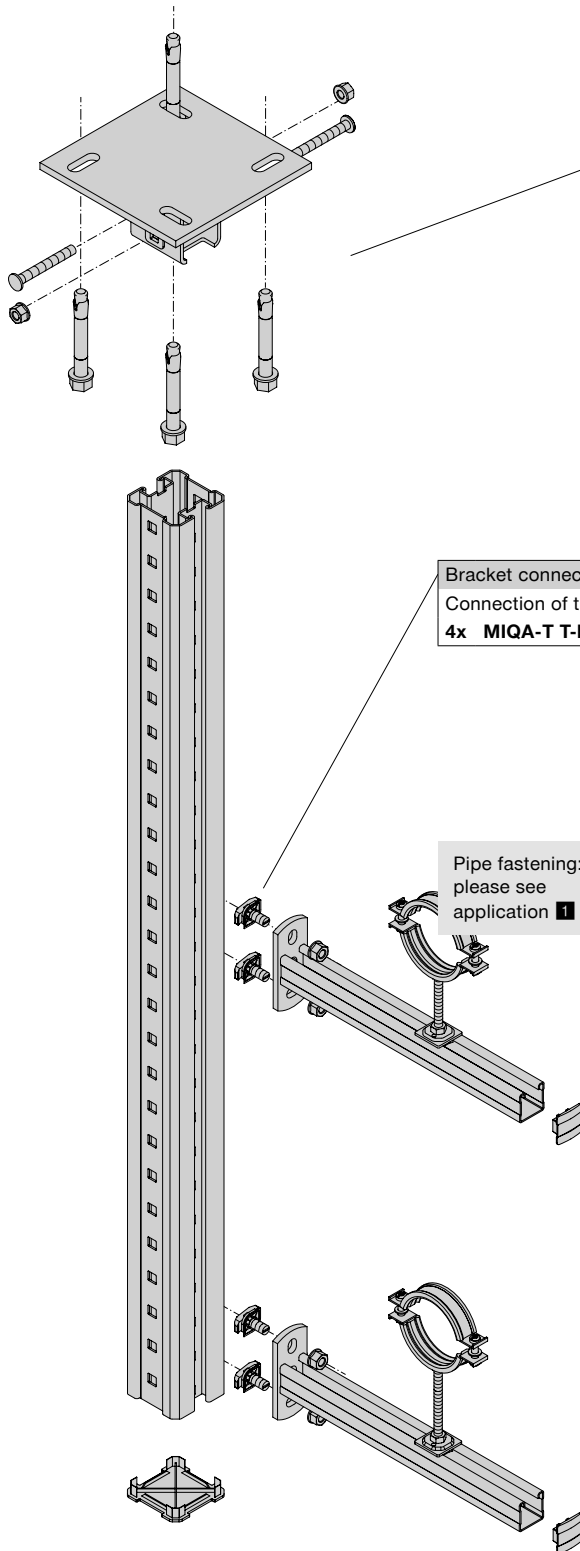
| | | |
|---|--|---------|
| Bracket connector BOM for 1 connection | | |
| Bracket connectors | | |
| 1x | MIC-90-LH bracket connector (pair) without screws | 2048107 |
| Connectivity parts for bracket connector | | |
| 4x | MIA-EH90 through bolt | 304887 |
| 4x | MIA-TP serrated plate | 305707 |
| 4x | M12-F-SL-WS 3/4" lock nut | 382897 |

Pipe fastening:
please see
application 1

| Application description | Application | Product lines | Base material |
|---|-------------|---------------|---------------|
| Ceiling tree | | MIQ System | Concrete |
| General comments | | MI System | |
| <ul style="list-style-type: none"> These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations | | | |

Ceiling Tree On Concrete - Options

MIQ ceiling tree with MQK brackets

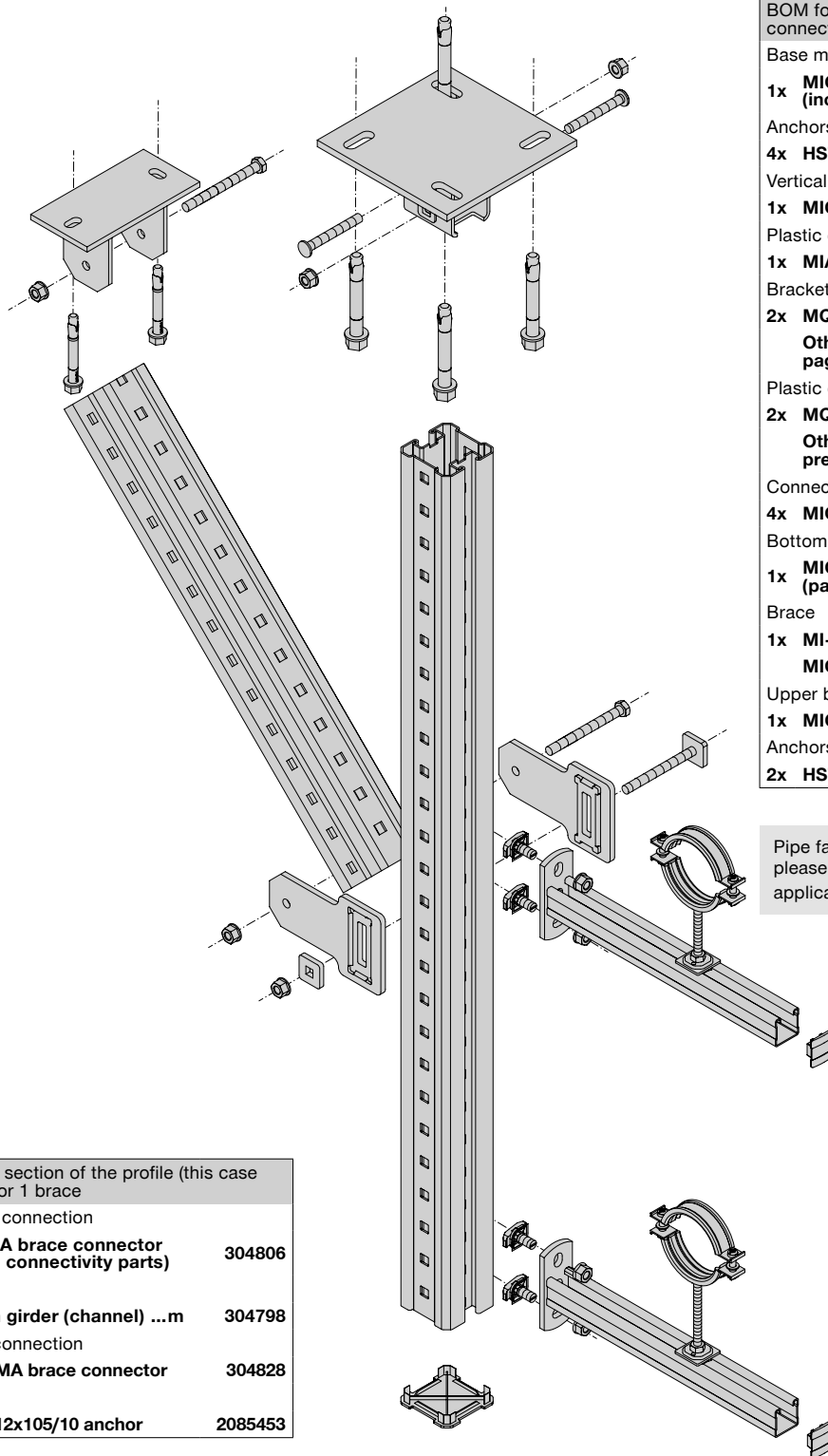


| MIQ ceiling tree with MQK brackets BOM for entire application without pipe ring connections | | |
|--|---|---------|
| Base material connector | | |
| 1x | MIQC-C90 base connector (incl. connectivity parts) | 2120144 |
| Anchors | | |
| 4x | HST-R M16x130/10 | 2085454 |
| Vertical upright | | |
| 1x | MIQ-90 3m...m girder | 2119866 |
| Plastic end cap for MIQ girder | | |
| 1x | MIA-EC90 plastic end cap | 432077 |
| Brackets | | |
| 2x | MQK-21/300-F bracket | 304113 |
| | MQK-21/450-F | 304114 |
| | MQK-41/300-F | 304115 |
| | MQK-41/450-F | 304116 |
| | MQK-41/600-F | 304117 |
| | MQK-41/1000-F | 304118 |
| | MQK-72/450-F | 304122 |
| | MQK-72/600-F | 304123 |
| | MQK-21 D/300-F | 304124 |
| | MQK-21 D/450-F | 304125 |
| | MQK-21 D/600-F | 304126 |
| | MQK-41 D/1000-F | 304127 |
| Plastic end cap for 21 mm format | | |
| 2x | MQZ-E21 | 370598 |
| Plastic end cap for 41 mm format | | |
| 2x | MQZ-E41 | 369685 |
| Plastic end cap for 72 mm format | | |
| 2x | MQZ-E41 | 369685 |
| 2x | MQZ-E31 | 369686 |
| Plastic end cap for 21D mm format | | |
| 4x | MQZ-E21 | 370598 |
| Plastic end cap for 41D mm format | | |
| 4x | MQZ-E41 | 369685 |
| Connection of the bracket in vertical upright | | |
| 4x | MIQA-T T-bolt incl. nut | 2120142 |

| Application description | Application | Product lines | Base material |
|---|-------------|---------------|---------------|
| Ceiling tree | | MIQ System | Concrete |
| General comments <ul style="list-style-type: none"> These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations | | MQ-F System | |

Ceiling Tree On Concrete - Options

MIQ ceiling tree – stiffening option using MIQ /MI girder



| MIQ ceiling tree with MQK brackets BOM for entire application without pipe ring connections | | |
|--|---|---------|
| Base material connector | | |
| 1x | MIQC-C90 base connector (incl. connectivity parts) | 2120144 |
| Anchors | | |
| 4x | HST-R M16x130/10 anchor | 2085454 |
| Vertical upright | | |
| 1x | MIQ-90 3m...m girder | 2119866 |
| Plastic end cap for MIQ girder | | |
| 1x | MIA-EC90 plastic end cap | 432077 |
| Brackets | | |
| 2x | MQK-41/600-F | 304117 |
| Other brackets on previous pages | | |
| Plastic end cap for 41 mm format | | |
| 2x | MQZ-E41 | 369685 |
| Other plastic end caps on previous pages | | |
| Connection of the bracket to vertical upright | | |
| 4x | MIQA-T T-bolt incl. nut | 2120142 |
| Bottom brace connection | | |
| 1x | MIC-U-MA brace connector (pair incl. connectivity parts) | 304806 |
| Brace | | |
| 1x | MI-90 3m girder (channel) ...m | 304798 |
| | MIQ-90 3m...m girder | 2119866 |
| Upper brace connection | | |
| 1x | MIC-CU-MA brace connector | 304828 |
| Anchors | | |
| 2x | HST-R M12x105/10 anchor | 2085453 |

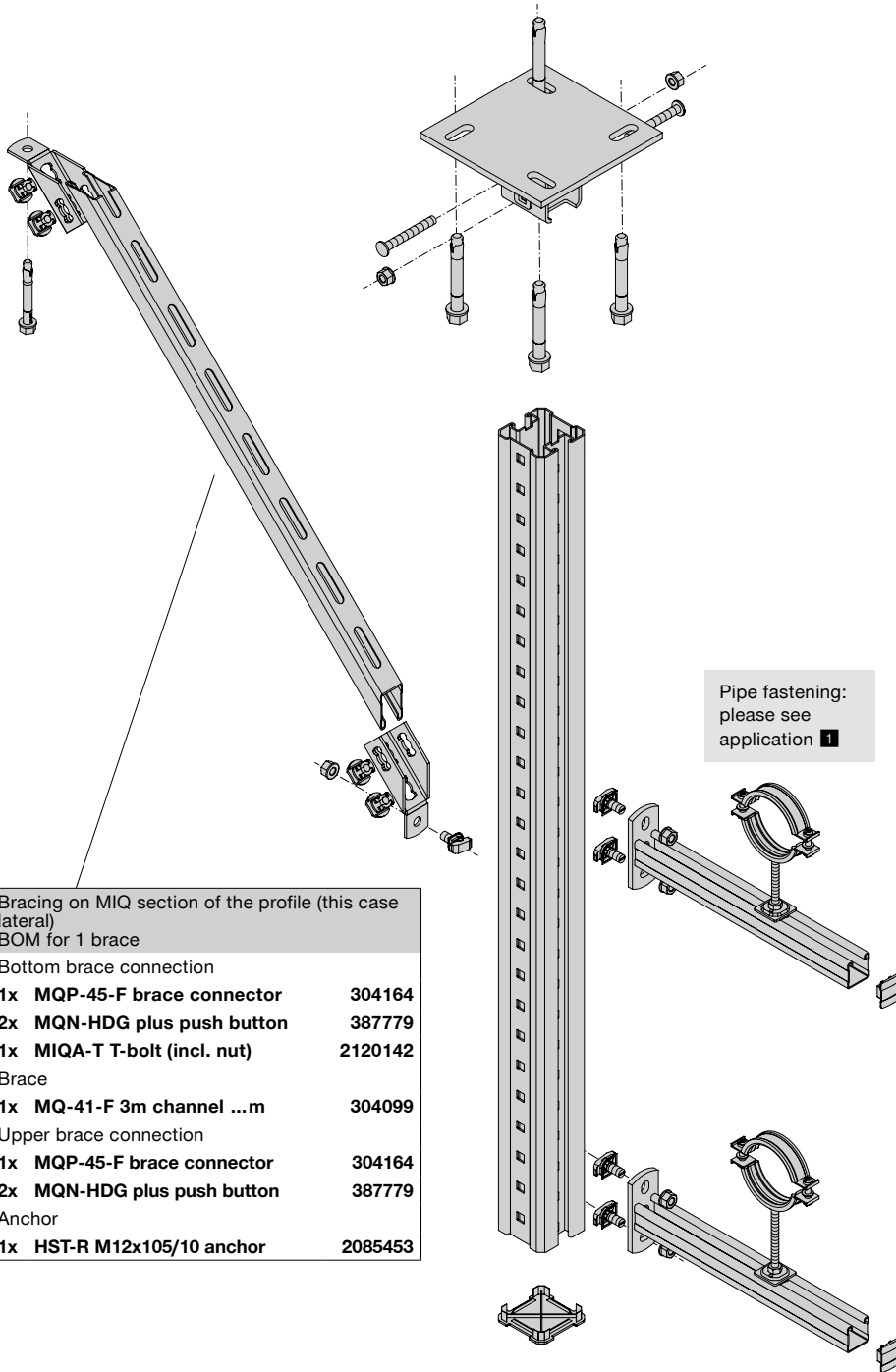
Pipe fastening:
please see application 1

| Bracing on MI section of the profile (this case lateral) BOM for 1 brace | | |
|--|---|---------|
| Bottom brace connection | | |
| 1x | MIC-U-MA brace connector (pair incl. connectivity parts) | 304806 |
| Brace | | |
| 1x | MI-90 3m girder (channel) ...m | 304798 |
| Upper brace connection | | |
| 1x | MIC-CU-MA brace connector | 304828 |
| Anchors | | |
| 2x | HST-R M12x105/10 anchor | 2085453 |

| Application description | Application | Product lines | Base material |
|---|-------------|---------------|---------------|
| Ceiling tree | | MIQ System | Concrete |
| General comments | | MQ-F System | |
| | | MI System | |
| <ul style="list-style-type: none"> These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations | | | |

Ceiling Tree On Concrete - Options

MIQ ceiling tree – stiffening option using MQ channel



Bracing on MIQ section of the profile (this case lateral)
BOM for 1 brace

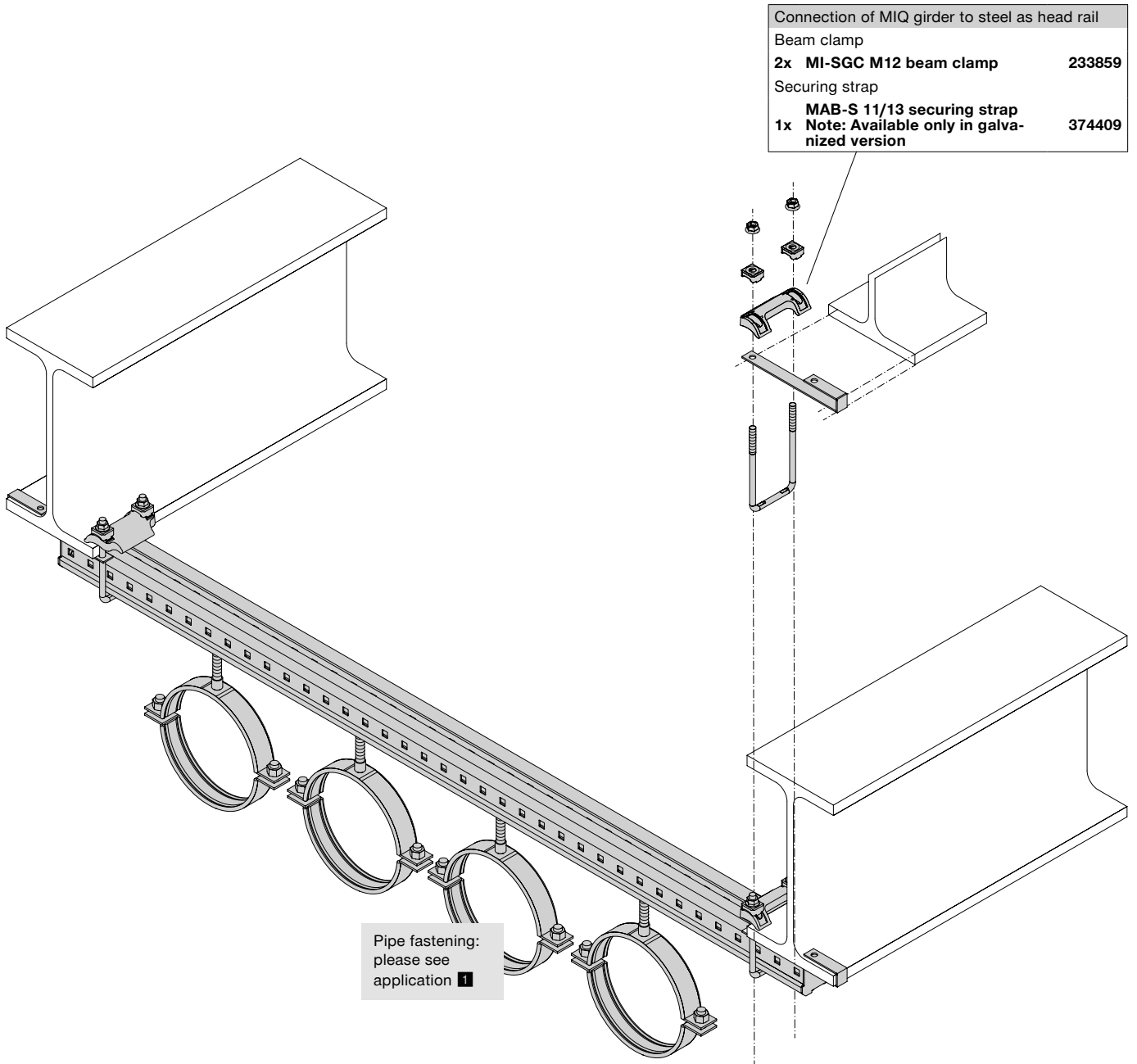
| | |
|------------------------------|---------|
| Bottom brace connection | |
| 1x MQP-45-F brace connector | 304164 |
| 2x MQN-HDG plus push button | 387779 |
| 1x MIQA-T T-bolt (incl. nut) | 2120142 |
| Brace | |
| 1x MQ-41-F 3m channel ...m | 304099 |
| Upper brace connection | |
| 1x MQP-45-F brace connector | 304164 |
| 2x MQN-HDG plus push button | 387779 |
| Anchor | |
| 1x HST-R M12x105/10 anchor | 2085453 |

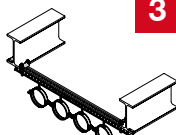
| | | |
|--|--|---------|
| MIQ ceiling tree with MQK brackets BOM for entire application without pipe ring connections | | |
| Base material connector | | |
| 1x MIQC-C90 base connector (incl. connectivity parts) | | 2120144 |
| Anchors | | |
| 4x HST-R M16x130/10 anchor | | 2085454 |
| Vertical upright | | |
| 1x MIQ-90 3m...m girder | | 2119866 |
| Plastic end cap for MIQ girder | | |
| 1x MIA-EC90 plastic end cap | | 432077 |
| Brackets | | |
| 2x MQK-41/600-F | | 304117 |
| Other brackets on previous pages | | |
| Plastic end cap for 41 mm format | | |
| 2x MQZ-E41 | | 369685 |
| Other plastic end caps on previous pages | | |
| Connection of the bracket to vertical upright | | |
| 4x MIQA-T T-bolt incl. nut | | 2120142 |
| Bottom brace connection | | |
| 1x MQP-45-F brace connector | | 304164 |
| 2x MQN-HDG plus push button | | 387779 |
| 1x MIQA-T T-bolt (incl. nut) | | 2120142 |
| Brace | | |
| 1x MQ-41-F 3m channel ...m | | 304099 |
| Upper brace connection | | |
| 1x MQP-45-F brace connector | | 304164 |
| 2x MQN-HDG plus push button | | 387779 |
| Anchors | | |
| 1x HST-R M12x105/10 anchor | | 2085453 |

| Application description | Application | Product lines | Base material |
|---|-------------|---------------|---------------|
| Ceiling tree | | MIQ System | Concrete |
| General comments | | MQ-F System | |
| <ul style="list-style-type: none"> These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations | | | |

Head Rail On Steel - Options

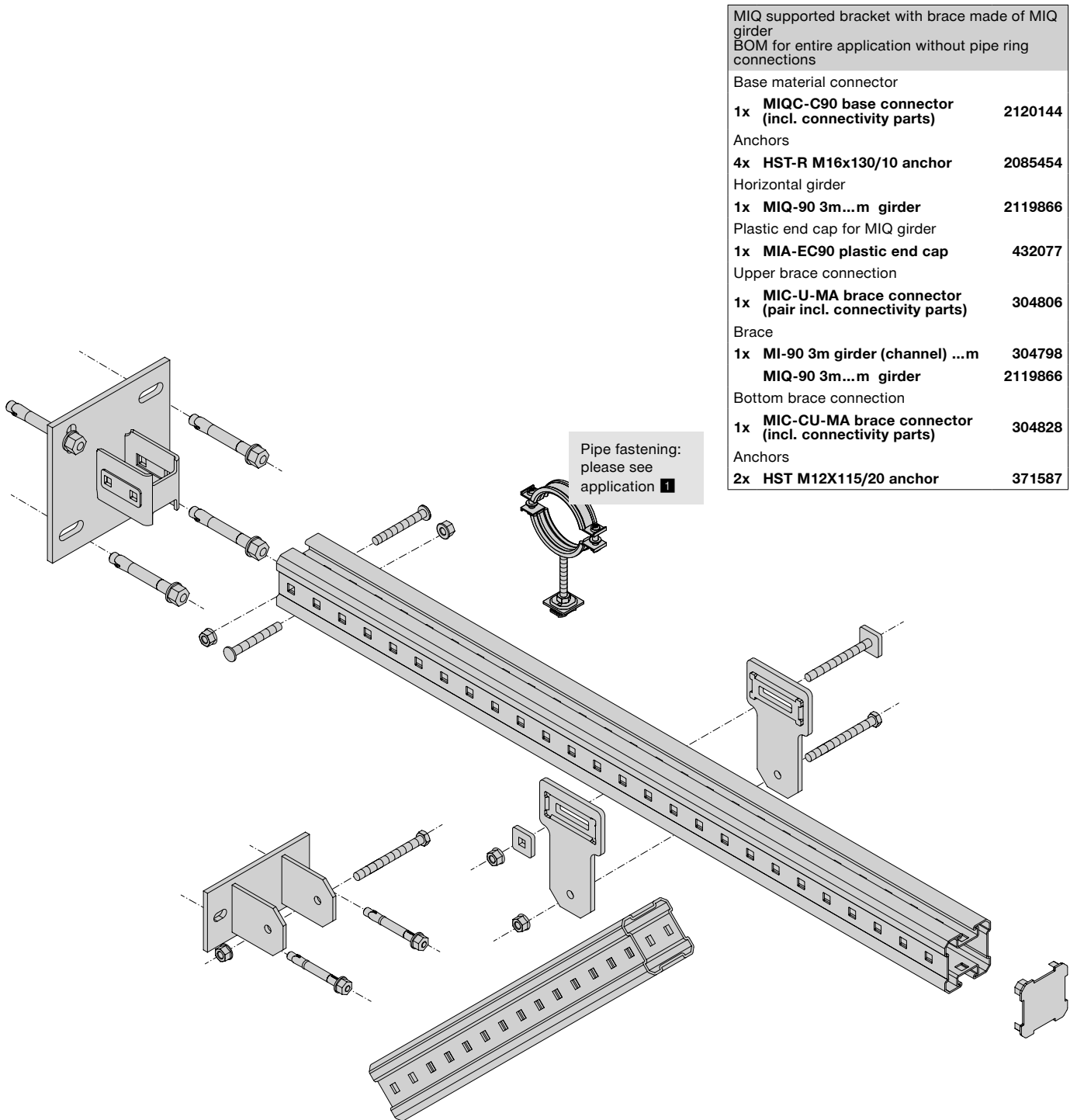
MIQ girder fixed to steel using MI System beam clamps



| Application description | Application | Product lines | Base material |
|---|--|---------------|---------------|
| Head rail | 3 | MIQ System | Steel |
| General comments |  | MI System | |
| <ul style="list-style-type: none"> These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations | | | |

Supported Bracket On Concrete – Options

MIQ supported bracket – stiffening option using MIQ girder

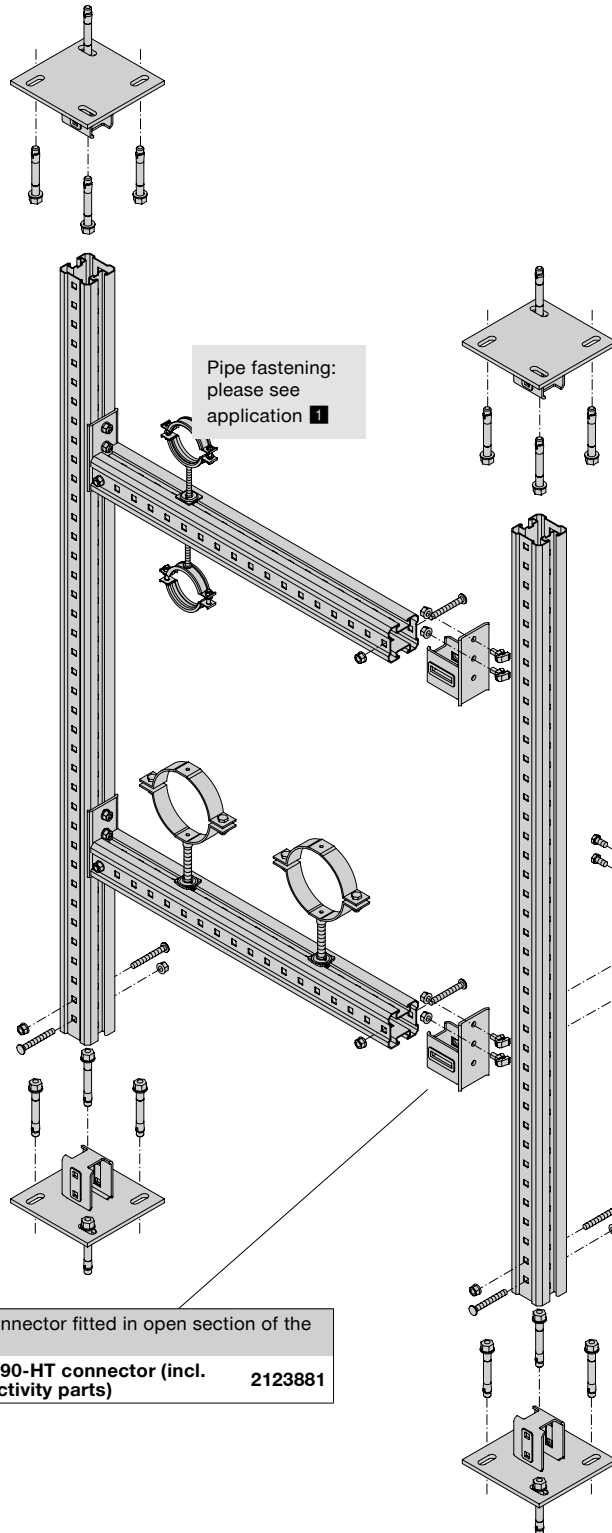


| | | |
|---|---|---------|
| MIQ supported bracket with brace made of MIQ girder BOM for entire application without pipe ring connections | | |
| Base material connector | | |
| 1x | MIQC-C90 base connector (incl. connectivity parts) | 2120144 |
| Anchors | | |
| 4x | HST-R M16x130/10 anchor | 2085454 |
| Horizontal girder | | |
| 1x | MIQ-90 3m...m girder | 2119866 |
| Plastic end cap for MIQ girder | | |
| 1x | MIA-EC90 plastic end cap | 432077 |
| Upper brace connection | | |
| 1x | MIC-U-MA brace connector (pair incl. connectivity parts) | 304806 |
| Brace | | |
| 1x | MI-90 3m girder (channel) ...m | 304798 |
| | MIQ-90 3m...m girder | 2119866 |
| Bottom brace connection | | |
| 1x | MIC-CU-MA brace connector (incl. connectivity parts) | 304828 |
| Anchors | | |
| 2x | HST M12X115/20 anchor | 371587 |

| Application description | Application | Product lines | Base material |
|---|-------------|---------------|---------------|
| Supported bracket | | MIQ System | Concrete |
| General comments | | MI System | |
| <ul style="list-style-type: none"> These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations | | | |

Ladder On Concrete - Options

MIQ ladder




| | | |
|---|--|---------|
| MIQ ladder with two levels BOM for entire application without pipe ring connections | | |
| Base material connector | | |
| 4x | MIQC-C90 base connector (incl. connectivity parts) upper screw are not used | 2120144 |
| Anchors | | |
| 16x | HST-R M16x130/10 anchor | 2085454 |
| Vertical girder | | |
| 2x | MIQ-90 3m...m girder | 2119866 |
| Horizontal girder | | |
| 2x | MIQ-90 3m...m girder | 2119866 |
| Angle connector | | |
| 4x | MIQC-90-HT angle connector (incl. connectivity parts) | 2123881 |

| | | |
|--|---|---------|
| MIQ 90° light-duty double connector fitted in open section of the girder | | |
| 2x | MIQC-90-L connector (incl. connectivity parts) | 2119868 |

| | | |
|--|---|---------|
| MIQ 90° light-duty double connector fitted in open section of the girder | | |
| 1x | MIQC-90-L connector (incl. connectivity parts) | 2119868 |

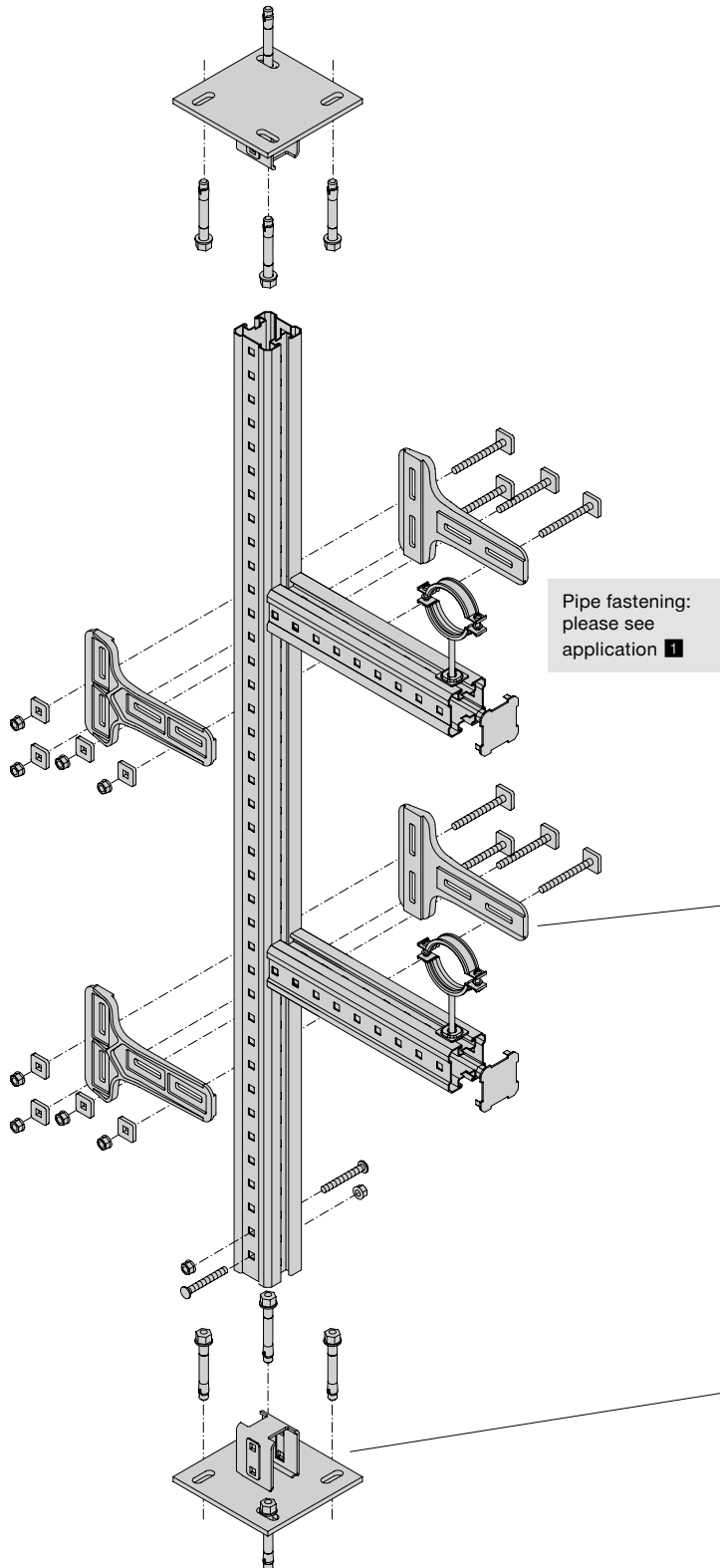
| | | |
|--|--|---------|
| MIQ 90° connector fitted in open section of the girder | | |
| 1x | MIQC-90-HT connector (incl. connectivity parts) | 2123881 |

| | | |
|-----------------------------|---|---------|
| MIQ base material connector | | |
| 1x | MIQC-C90 base connector (incl. connectivity parts) | 2120144 |
| 4x | HST-R M16x130/10 anchor | 2085454 |

| Application description | Application | Product lines | Base material |
|---|---|---------------|---------------|
| Ladder |  5 | MIQ System | Concrete |
| General comments | | Anchors | |
| <ul style="list-style-type: none"> These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations | | | |

Bracket tree on concrete - options

MIQ bracket tree with brackets made of MIQ girder



MIQ bracket tree with brackets made of MIQ girder. BOM for entire application without pipe ring connections


| | | |
|--|--|---------|
| Base material connector | | |
| 2x | MIQC-C90 base connector (incl. connectivity parts) upper screw are not used | 2120144 |
| Anchors | | |
| 8x | HST-R M16x130/10 anchor | 2085454 |
| Vertical girder | | |
| 1x | MIQ-90 3m...m girder | 2119866 |
| Horizontal girder | | |
| 2x | MIQ-90 3m...m girder | 2119866 |
| Bracket connectors | | |
| 2x | MIC-90-LH bracket connector (pair) without screws | 2048107 |
| Connectivity parts for bracket connector | | |
| 8x | MIA-EH90 through bolt | 304887 |
| 8x | MIA-TP serrated plate | 305707 |
| 8x | M12-F-SL-WS 3/4" lock nut | 382897 |
| Plastic end cap | | |
| 2x | MIA-EC90 plastic end cap | 432077 |

MIQ/MI bracket connector

| | | |
|--|--|---------|
| Bracket connectors | | |
| 1x | MIC-90-LH bracket connector (pair) without screws | 2048107 |
| Connectivity parts for bracket connector | | |
| 4x | MIA-EH90 through bolt | 304887 |
| 4x | MIA-TP serrated plate | 305707 |
| 4x | M12-F-SL-WS 3/4" lock nut | 382897 |

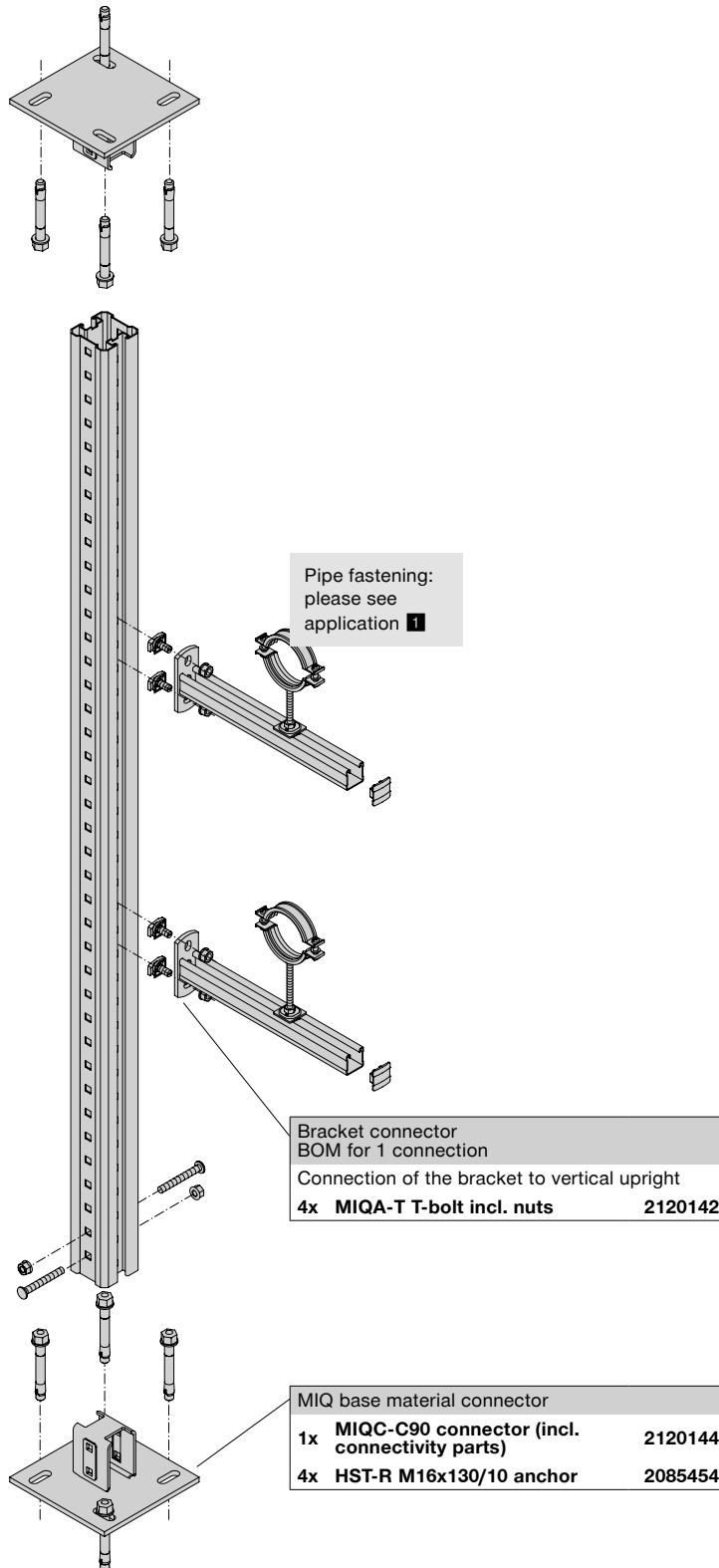
MIQ base material connector

| | | |
|----|---|---------|
| 1x | MIQC-C90 base connector (incl. connectivity parts) | 2120144 |
| 4x | HST-R M16x130/10 anchor | 2085454 |


| Application description | Application | Product lines | Base material |
|---|---|---------------|---------------|
| Bracket tree |  6 | MIQ System | Concrete |
| General comments <ul style="list-style-type: none"> These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations | | MI System | |

Bracket Tree On Concrete - Options

MIQ bracket tree with brackets made of MQK brackets

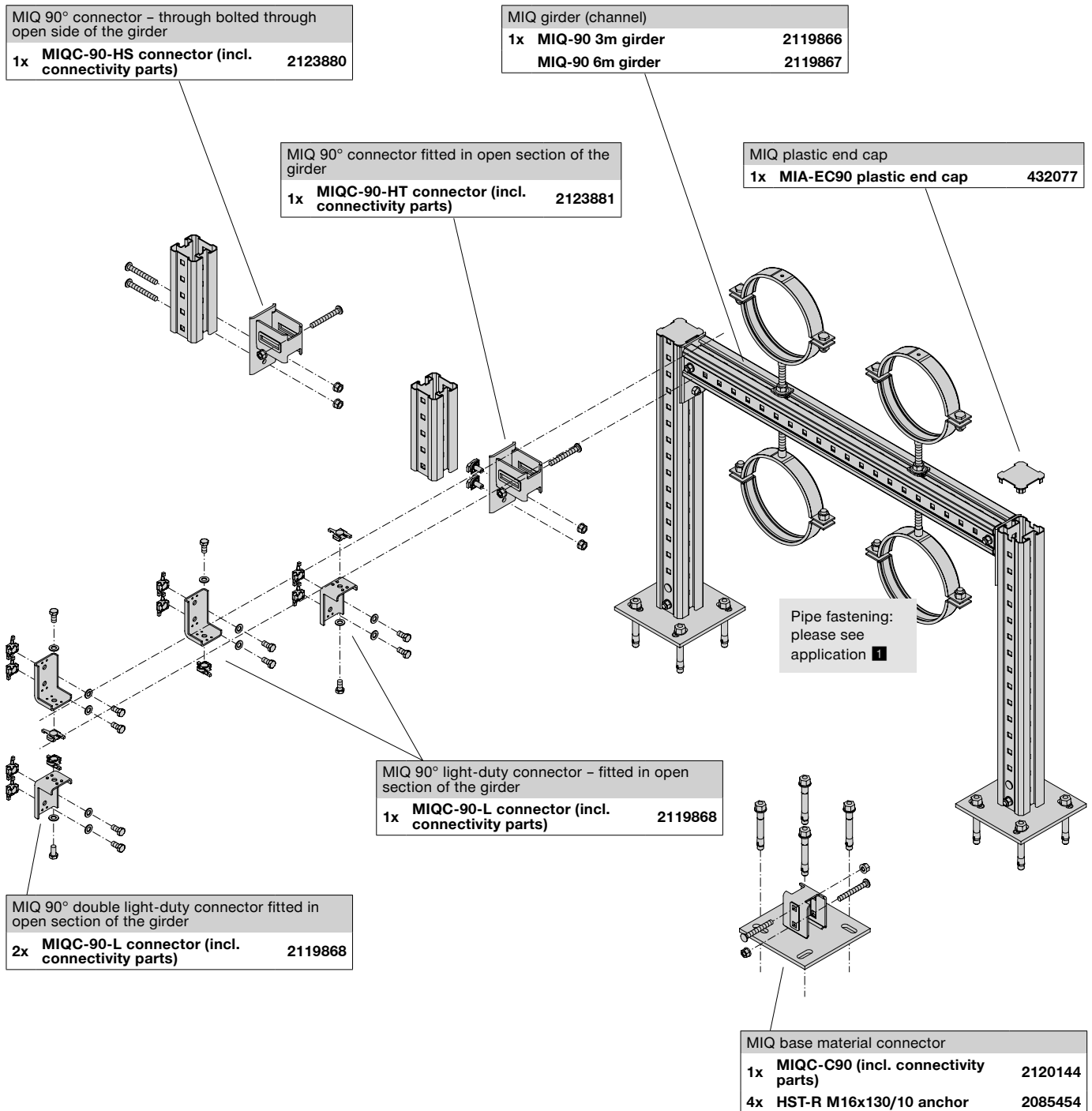


| MIQ bracket tree with brackets made of MQK brackets BOM for entire application without pipe ring connections | | |
|---|---|---------|
| Base material connector | | |
| 2x | MIQC-C90 base connector (incl. connectivity parts) upper screws are not used | 2120144 |
| Anchors | | |
| 8x | HST-R M16x130/10 anchor | 2085454 |
| Vertical upright | | |
| 1x | MIQ-90 3m...m girder | 2119866 |
| Brackets | | |
| 2x | MQK-21/300-F bracket | 304113 |
| | MQK-21/450-F | 304114 |
| | MQK-41/300-F | 304115 |
| | MQK-41/450-F | 304116 |
| | MQK-41/600-F | 304117 |
| | MQK-41/1000-F | 304118 |
| | MQK-72/450-F | 304122 |
| | MQK-72/600-F | 304123 |
| | MQK-21 D/300-F | 304124 |
| | MQK-21 D/450-F | 304125 |
| | MQK-21 D/600-F | 304126 |
| | MQK-41 D/1000-F | 304127 |
| Plastic end cap for 21 mm format | | |
| 2x | MQZ-E21 | 370598 |
| Plastic end cap for 41 mm format | | |
| 2x | MQZ-E41 | 369685 |
| Plastic end cap for 72 mm format | | |
| 2x | MQZ-E41 | 369685 |
| 2x | MQZ-E31 | 369686 |
| Plastic end cap for 21D mm format | | |
| 4x | MQZ-E21 | 370598 |
| Plastic end cap for 41D mm format | | |
| 4x | MQZ-E41 | 369685 |
| Connection of the bracket to vertical upright | | |
| 4x | MIQA-T T-bolt incl. nut | 2120142 |

| Application description | Application | Product lines | Base material |
|---|--|---------------|---------------|
| Bracket tree |  | 6 MIQ System | Concrete |
| General comments <ul style="list-style-type: none"> These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations | | MQ-F System | |

Goal Post On Concrete - Options

Goal post



| Application description | Application | Product lines | Base material |
|--|-------------|---------------|---------------|
| Goal post | | MIQ System | Concrete |
| General comments <ul style="list-style-type: none"> These illustrations do not show any loading capacity limits, load exposure or limitations applicable to any load combinations | | Anchors | |

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