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**VCS-100  
 NON SEISMIC  
 SPECIFICATION  
 APPLICATION  
 DRAWINGS**

# VCSA

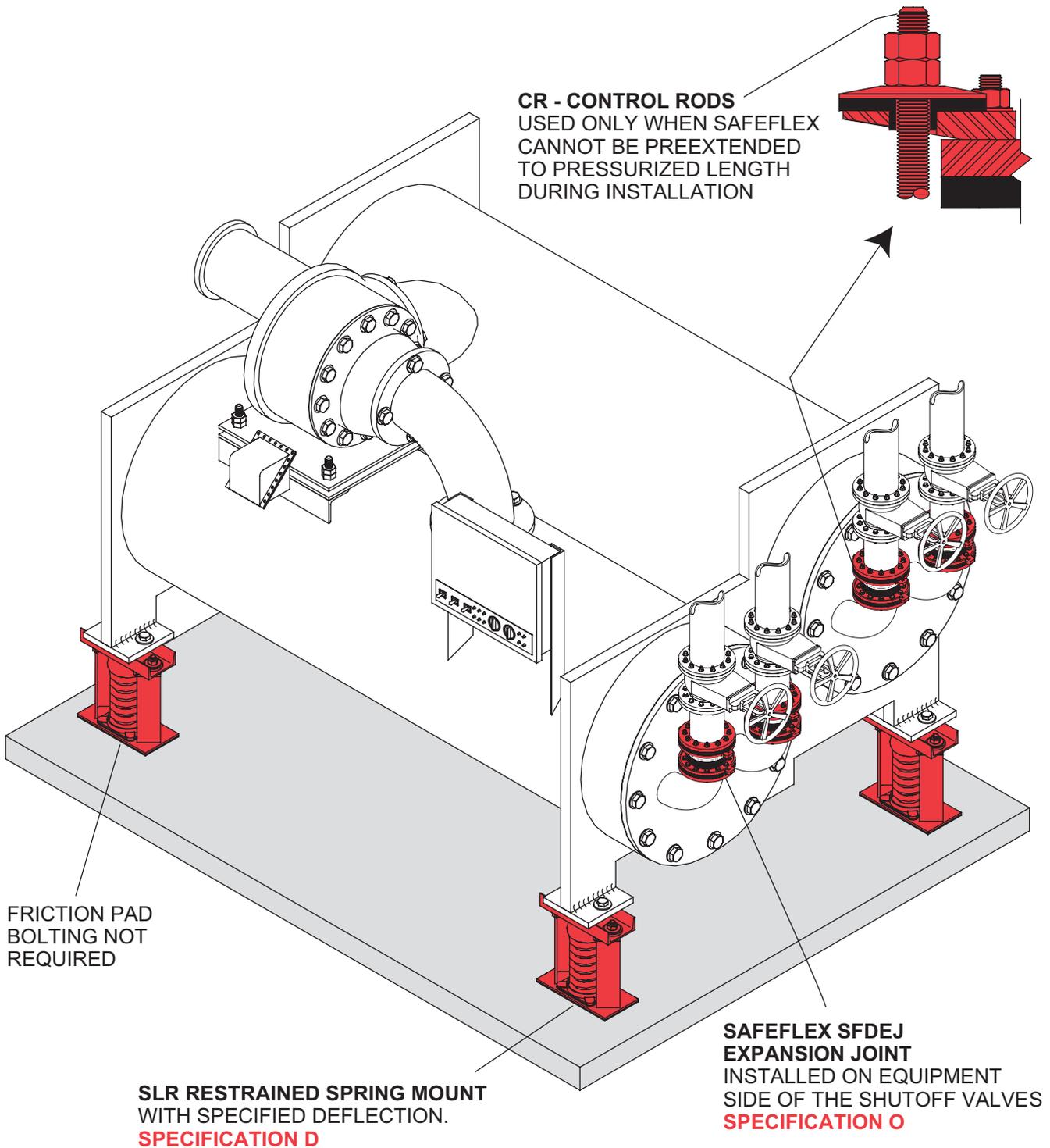
**VCSA-110-1 BULLETIN**

It is sometimes difficult to visualize equipment installed in accordance with the letter recommendations in our VCS-100 "Specification Selection Guide". This booklet is indexed in the same order as the Selection Guide and should help to fill that gap. The letter references on

the drawings are the same as the specification paragraphs. We hope these illustrations will help.

Page	Equipment	Isolation Description
2	<b>Centrifugal Chiller</b>	Directly Mounted on Restrained Spring Mounts
3	<b>Centrifugal Chiller</b>	Directly Mounted on Twin Sphere Air Spring Mounts
4	<b>Reciprocating Direct Drive Compressor</b>	Height Saving Brackets and High Deflection Springs
5	<b>Steam Generator</b>	Directly mounted on Restrained Spring Mounts
6	<b>Double Suction Pump</b>	Concrete Filled Base with Height Saving Brackets and High Deflection Springs
7	<b>End Suction Pump</b>	Steel Base with Height Saving Brackets and High Deflection Springs
8	<b>End Suction Pump</b>	Steel Base with Height Saving Brackets and Air Springs
9	<b>HVAC Unit</b>	Suspended from Hangers
10	<b>HVAC Unit</b>	Steel Base with Height Saving Brackets and High Deflection Springs
11	<b>HVAC Unit</b>	Directly mounted on 1" Deflection Springs
12	<b>Vertical Tank Type Compressor</b>	Directly mounted on Concrete Filled Base with 1" Deflection Springs
13	<b>Horizontal Tank Type Compressor</b>	Directly mounted on Restrained Spring Mounts
14	<b>Direct Drive Blower</b>	Bolted to Rails supported by Spring Mounts
15	<b>Utility Blower</b>	Directly mounted on Spring Mounts
16	<b>Centrifugal Blower</b>	Concrete Filled Base with Height Saving Brackets and High Deflection Springs
17	<b>Centrifugal Blower</b>	Concrete Filled Base with Built In Corners and 1" Deflection Springs
18	<b>Floor Mounted Axial Blower</b>	With Thrust Restraints and directly mounted on Spring Mounts
19	<b>Axial Blower</b>	With Thrust Restraints and suspended by Hangers
20	<b>Large Multi-sectioned Cooling Tower</b>	Steel Base and Beam Supports using Wind Resistant Air Spring Mounts
21	<b>Large Multi-sectioned Cooling Tower</b>	Steel Base and Beam Supports using Wind Resistant Steel Spring Mounts
22	<b>Packaged HVAC Cooling Tower</b>	Steel Base with Wind Resistant Twin Sphere Air Spring Mounts
23	<b>Rooftop Packaged HVAC Cooling Tower</b>	Steel Base and Wind Resistant Spring Mounts
24	<b>Large Transformer</b>	Steel Base with Air Spring Mounts

**CENTRIFUGAL CHILLER** directly mounted on **SLR** Restrained Spring Mounts to prevent lifting when water and refrigerant is removed. **SAFEX** Expansion Joints are installed in pipelines to reduce blade frequency vibration and noise.



**CENTRIFUGAL CHILLER** directly mounted on **SLR-MT** Restrained Twin Sphere Air Spring Mounts to simplify rigging and maintain emergency elevation. **SAFEFLEX** Expansion Joints are installed in pipelines to reduce blade frequency vibration and noise.

SLR-MT RESTRAINED TWIN SPHERE AIR SPRING MOUNT WITH SPECIFIED FREQUENCY. **SPECIFICATION E**

CR - CONTROL RODS  
USED ONLY WHEN SAFEFLEX  
CANNOT BE PREEXTENDED  
TO PRESSURIZED LENGTH  
DURING INSTALLATION

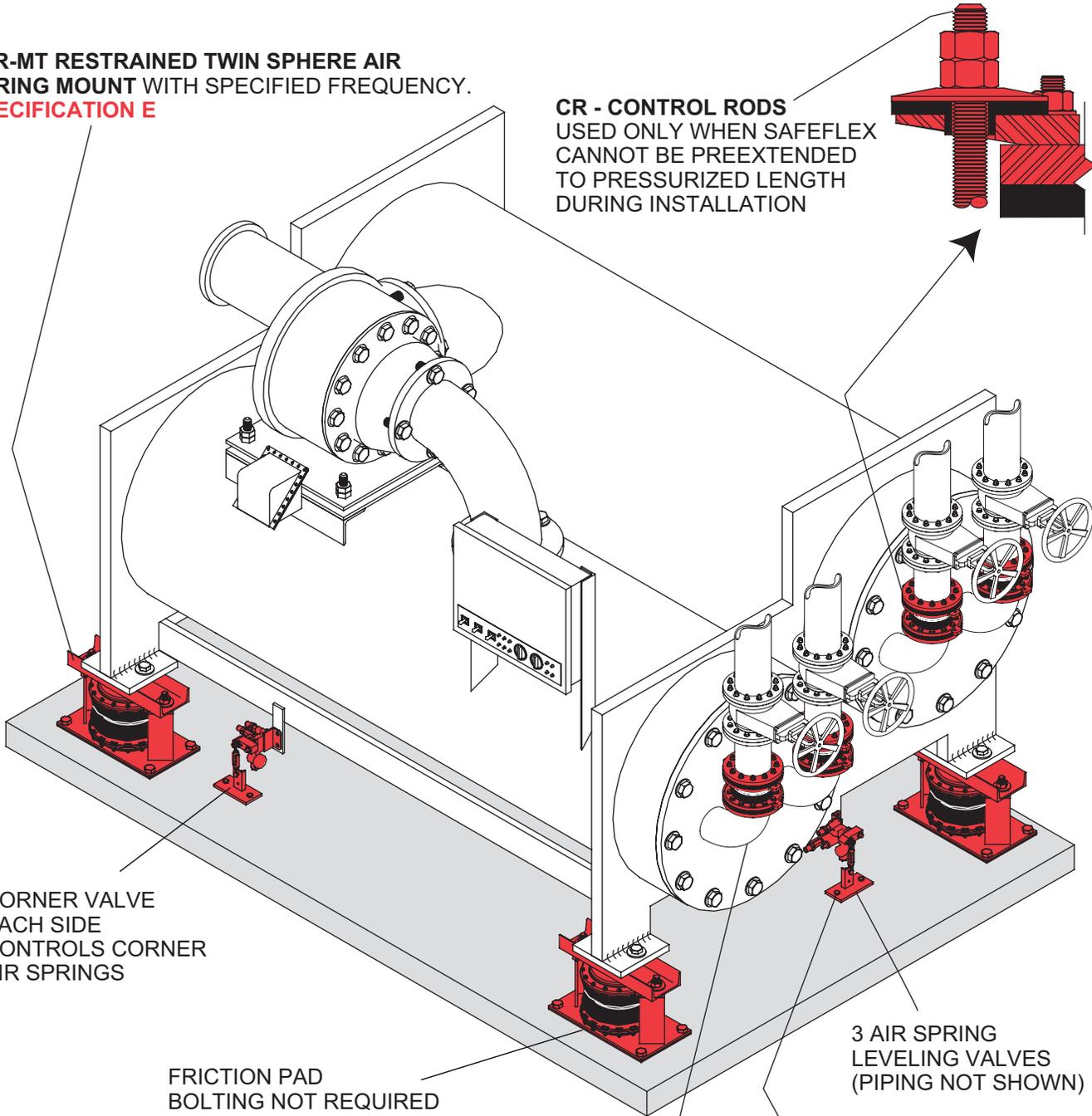
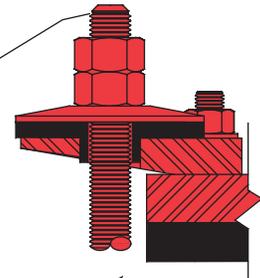
CORNER VALVE  
EACH SIDE  
CONTROLS CORNER  
AIR SPRINGS

FRICTION PAD  
BOLTING NOT REQUIRED

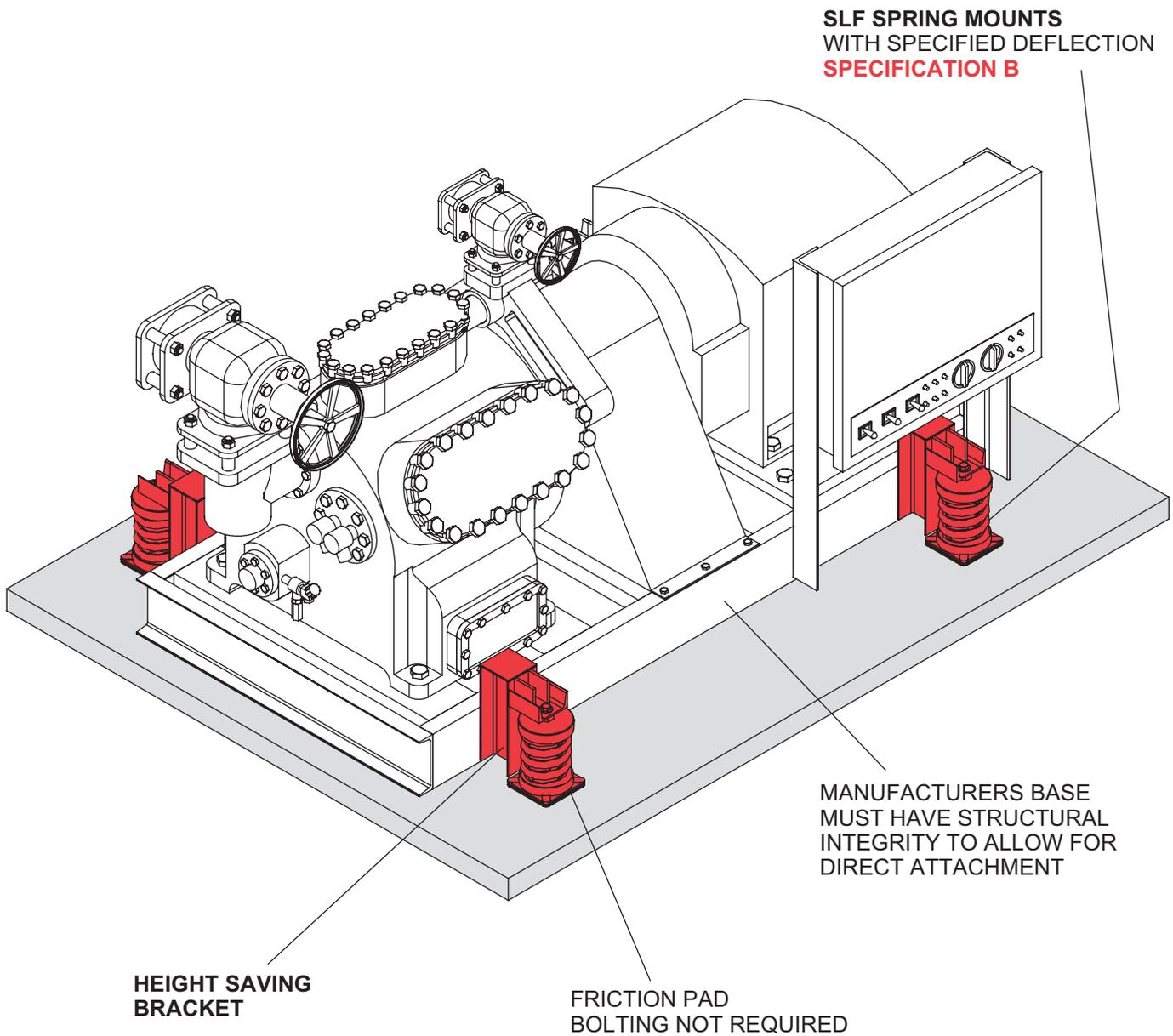
SAFEFLEX SFDEJ EXPANSION JOINT  
INSTALLED ON EQUIPMENT SIDE OF  
THE SHUTOFF VALVES  
**SPECIFICATION O**

CONTROLS 2 END  
AIR SPRINGS

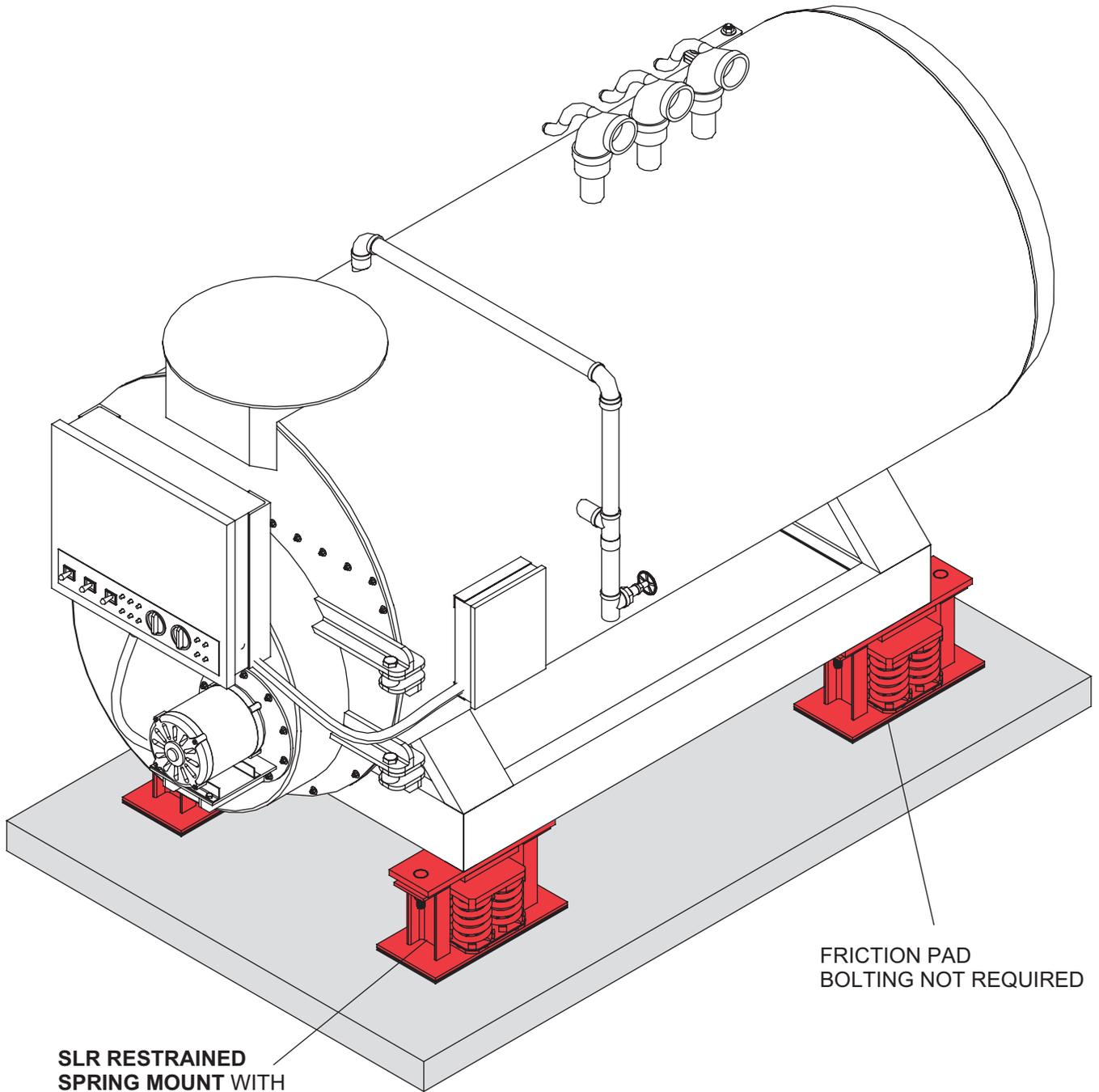
3 AIR SPRING  
LEVELING VALVES  
(PIPING NOT SHOWN)



**RECIPROCATING DIRECT DRIVE COMPRESSOR**  
on manufacturers base fitted with height saving brackets  
and high deflection **SLF** Mounts



**STEAM GENERATOR** directly mounted on **SLR Restrained Spring Mounts** to prevent lifting when water is drained



**SLR RESTRAINED  
SPRING MOUNT WITH  
SPECIFIED DEFLECTION  
SPECIFICATION D**

**FRICION PAD  
BOLTING NOT REQUIRED**

**DOUBLE SUCTION PUMP** on concrete filled **BMK Base** with height saving brackets and high deflection **SLF Spring Mounts**. **SAFEFLEX** Expansion Joints are installed in pipelines to reduce blade frequency vibration and noise.

**SAFEFLEX SFDEJ EXPANSION JOINT** INSTALLED ON EQUIPMENT SIDE OF THE SHUTOFF VALVES  
**SPECIFICATION O**

**CR - CONTROL RODS** USED ONLY WHEN SAFEFLEX CANNOT BE PREEXTENDED TO PRESSURIZED LENGTH DURING INSTALLATION

FILL PUMP BASE WITH GROUT IF CALLED FOR BY PUMP MANUFACTURER

FRICION PAD BOLTING NOT REQUIRED

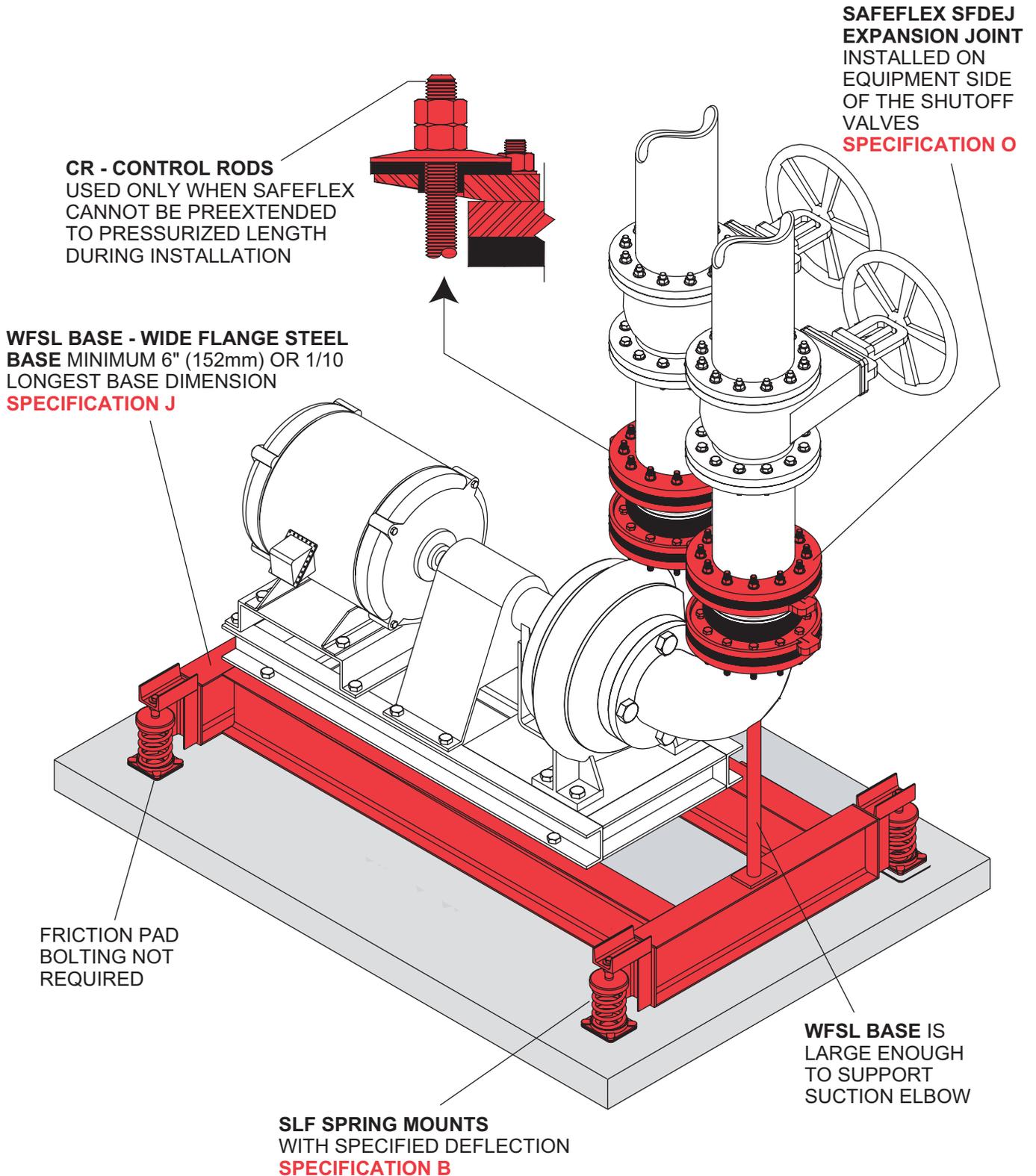
**BMK FLOATING CONCRETE BASE** MINIMUM 6" (150mm) OR 1/12 LONGEST BASE DIMENSION  
**SPECIFICATION L**

**HEIGHT SAVING BRACKETS**

**SLF SPRING MOUNTS** WITH SPECIFIED DEFLECTION  
**SPECIFICATION B**

**BMK BASE IS** LARGE ENOUGH TO SUPPORT SUCTION AND DISCHARGE ELBOWS

**END SUCTION PUMP on WFSL Base with height saving brackets and high deflection SLF Spring Mounts. SAFEFLEX Expansion Joints are installed in pipelines to reduce blade frequency vibration and noise.**



**END SUCTION PUMP** on **WFSL** Base and **MT** Air Springs.  
**SAFEX** Expansion Joints are installed in pipelines to  
reduce blade frequency vibration and noise.

**SAFEX SFDEJ**  
**EXPANSION JOINT**  
INSTALLED ON  
EQUIPMENT SIDE OF  
THE SHUTOFF VALVES  
**SPECIFICATION O**

**CR - CONTROL RODS**  
USED ONLY WHEN SAFEX  
CANNOT BE PREEXTENDED  
TO PRESSURIZED LENGTH  
DURING INSTALLATION

**WFSL BASE - WIDE FLANGE STEEL**  
BASE MINIMUM 6" (152mm) OR 1/10  
LONGEST BASE DIMENSION.  
**SPECIFICATION J**

**WFSL BASE IS**  
LARGE ENOUGH  
TO SUPPORT  
SUCTION ELBOW.

**FRICTION PAD**  
BOLTING NOT  
REQUIRED

**CORNER VALVE EACH SIDE**  
CONTROLS CORNER AIR SPRINGS

**MT TWIN SPHERE AIR SPRINGS**  
MUST BE INSTALLED WITH AIR  
SPRING LEVELING VALVES.  
**SPECIFICATION C**

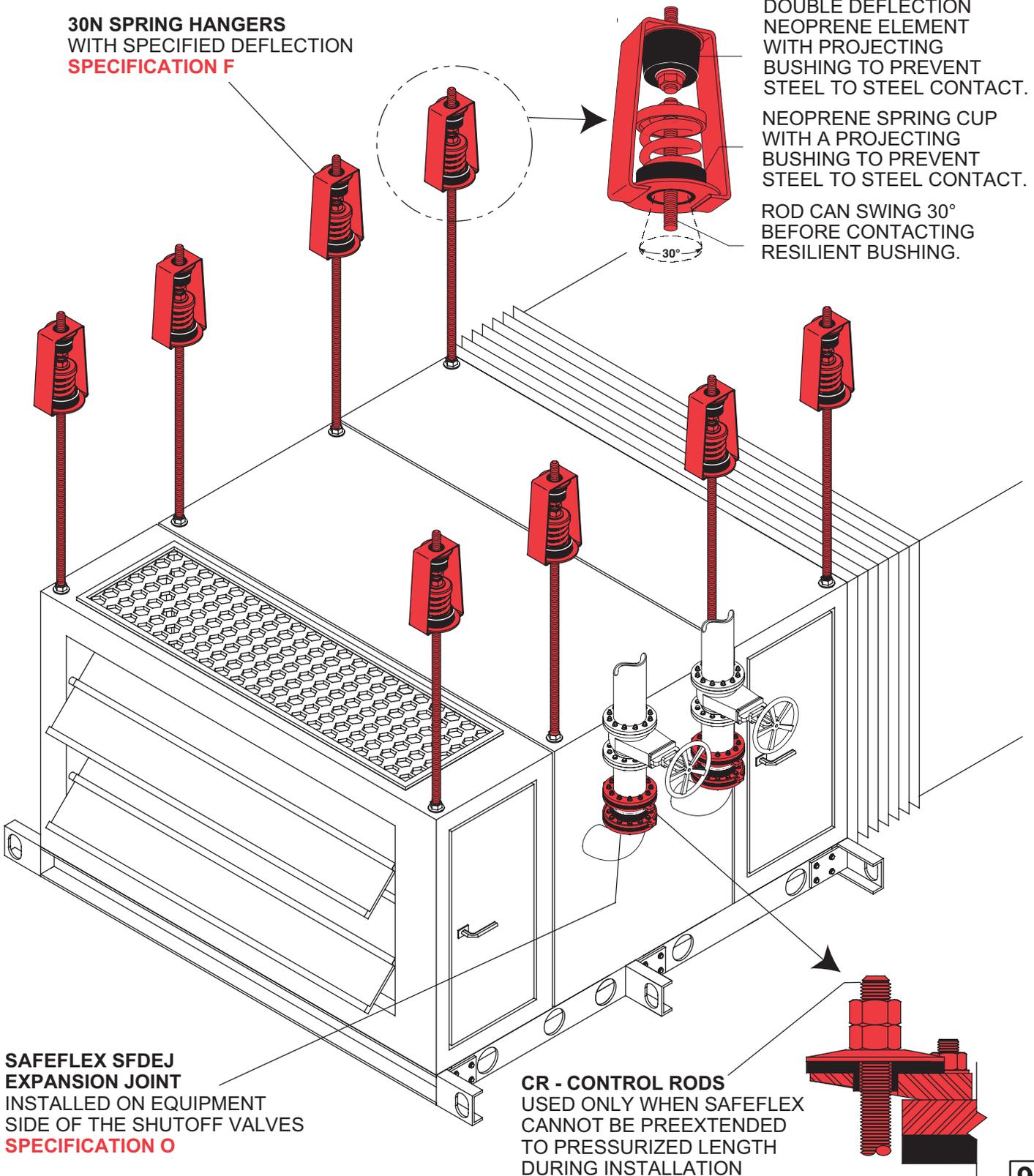
**CONTROLS 2 END**  
AIR SPRINGS

**3 AIR SPRING**  
LEVELING VALVES  
(PIPING NOT SHOWN)

**HVAC UNIT** suspended from **30N Hangers**.  
**SAFEFLEX** Expansion Joints are installed in pipelines  
to reduce blade frequency vibration and noise.

**30N SPRING HANGERS**  
WITH SPECIFIED DEFLECTION  
**SPECIFICATION F**

DOUBLE DEFLECTION  
NEOPRENE ELEMENT  
WITH PROJECTING  
BUSHING TO PREVENT  
STEEL TO STEEL CONTACT.  
NEOPRENE SPRING CUP  
WITH A PROJECTING  
BUSHING TO PREVENT  
STEEL TO STEEL CONTACT.  
ROD CAN SWING 30°  
BEFORE CONTACTING  
RESILIENT BUSHING.

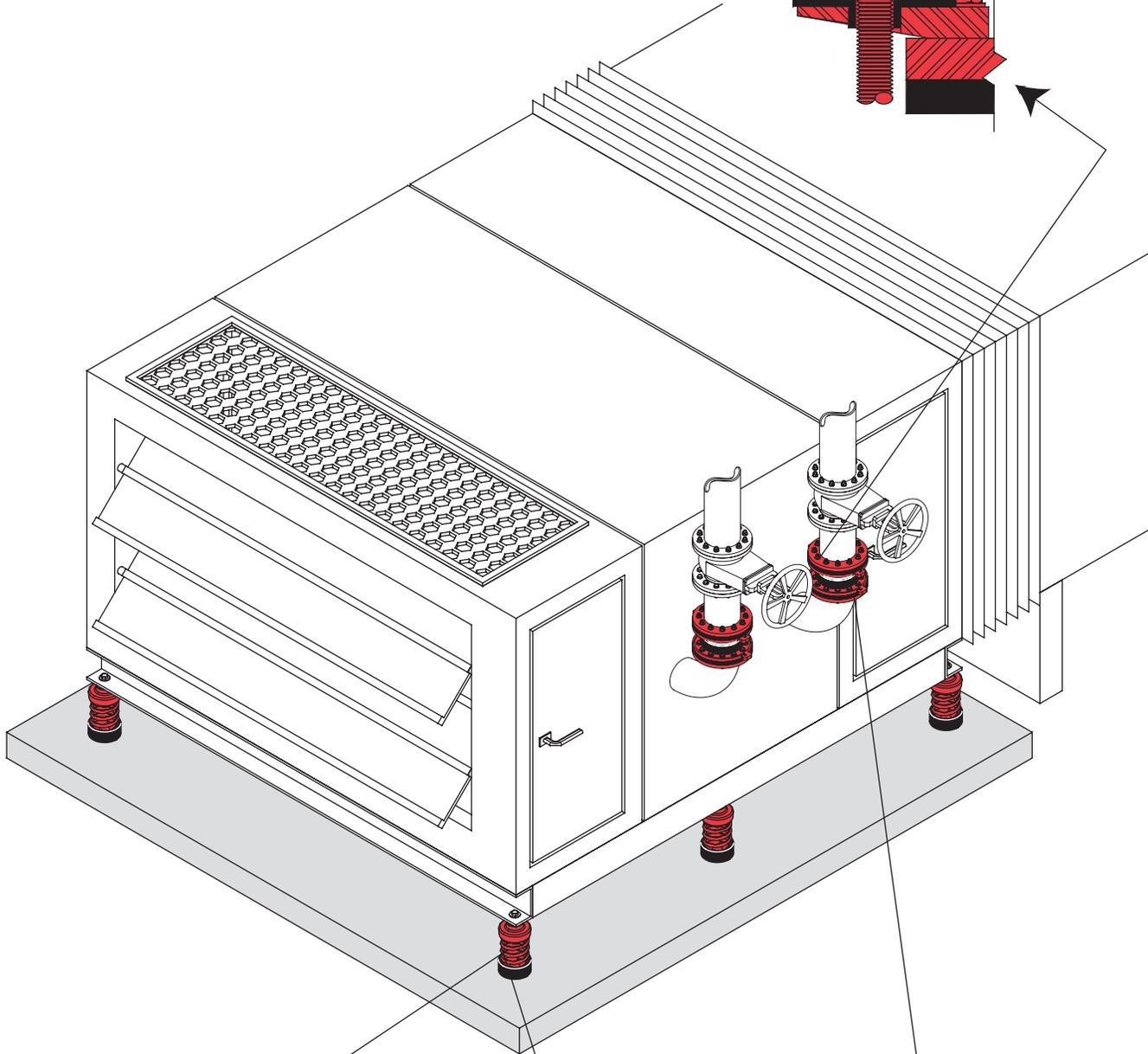
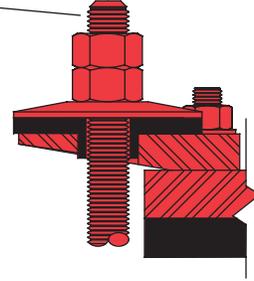


**SAFEFLEX SFDEJ**  
**EXPANSION JOINT**  
INSTALLED ON EQUIPMENT  
SIDE OF THE SHUTOFF VALVES  
**SPECIFICATION O**

**CR - CONTROL RODS**  
USED ONLY WHEN SAFEFLEX  
CANNOT BE PREEXTENDED  
TO PRESSURIZED LENGTH  
DURING INSTALLATION

**HVAC UNIT** directly mounted on 1" deflection **SLF Spring Mounts**.  
**SAFEFLEX** Expansion Joints are installed in pipelines to reduce  
blade frequency vibration and noise.

**CR - CONTROL RODS**  
USED ONLY WHEN SAFEFLEX  
CANNOT BE PREEXTENDED  
TO PRESSURIZED LENGTH  
DURING INSTALLATION



**SLF SPRING MOUNTS**  
WITH SPECIFIED DEFLECTION  
**SPECIFICATION B**

**FRICION CUP**  
**BOLTING NOT**  
**REQUIRED**

**SAFEFLEX SFDEJ EXPANSION JOINT**  
**INSTALLED ON EQUIPMENT SIDE OF**  
**THE SHUTOFF VALVES**  
**SPECIFICATION O**

**HVAC UNIT** on **WFSL** Steel Base with height saving brackets and high deflection **SLF** Spring Mounts. **SAFEX** Expansion Joints are installed in pipelines to reduce blade frequency vibration and noise.

**CR - CONTROL RODS**  
USED ONLY WHEN SAFEX  
CANNOT BE PREEXTENDED  
TO PRESSURIZED LENGTH  
DURING INSTALLATION

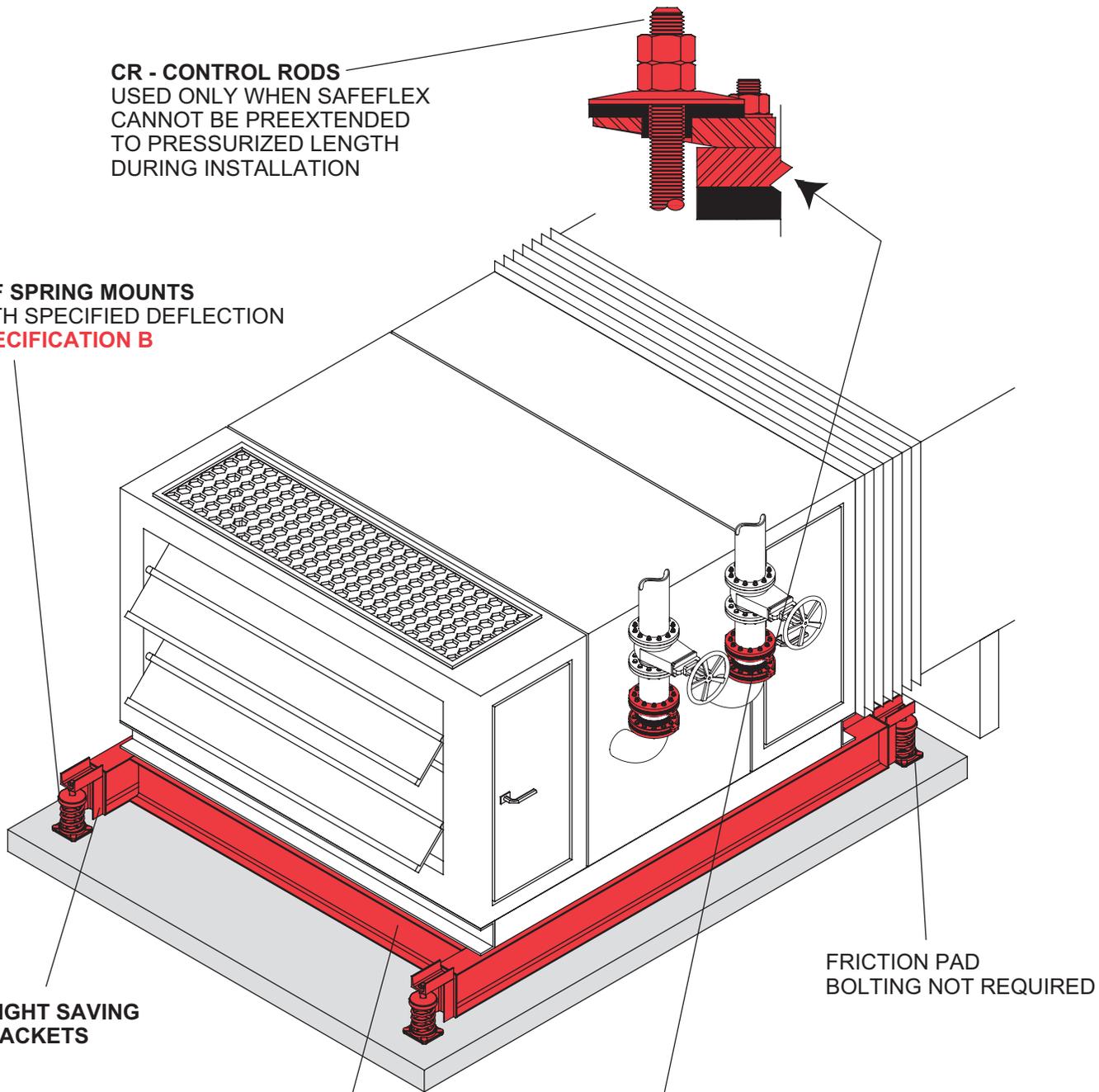
**SLF SPRING MOUNTS**  
WITH SPECIFIED DEFLECTION  
**SPECIFICATION B**

**HEIGHT SAVING  
BRACKETS**

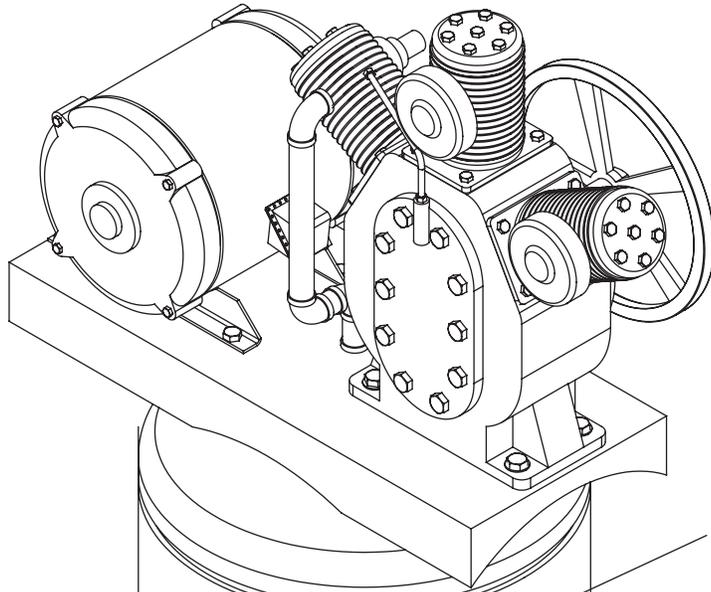
**WFSL BASE - WIDE FLANGE BASE**  
BASE MINIMUM 6" (152mm) OR 1/10  
LONGEST BASE DIMENSION  
**SPECIFICATION J**

**SAFEX SFDEJ EXPANSION JOINT**  
INSTALLED ON EQUIPMENT SIDE OF  
THE SHUTOFF VALVES  
**SPECIFICATION O**

**FRICION PAD**  
**BOLTING NOT REQUIRED**



**VERTICAL TANK TYPE COMPRESSOR** directly mounted on  
**BMK Concrete Filled Base and 1" deflection SLF Spring Mounts**



HIGH CENTER OF GRAVITY  
WITHOUT CONCRETE  
BASE (POOR STABILITY)

LOWERED CENTER OF  
GRAVITY ON CONCRETE  
BASE (IMPROVED STABILITY)

CENTER OF GRAVITY  
IS LOWERED BY MASS  
OF BMK FLOATING  
CONCRETE BASE

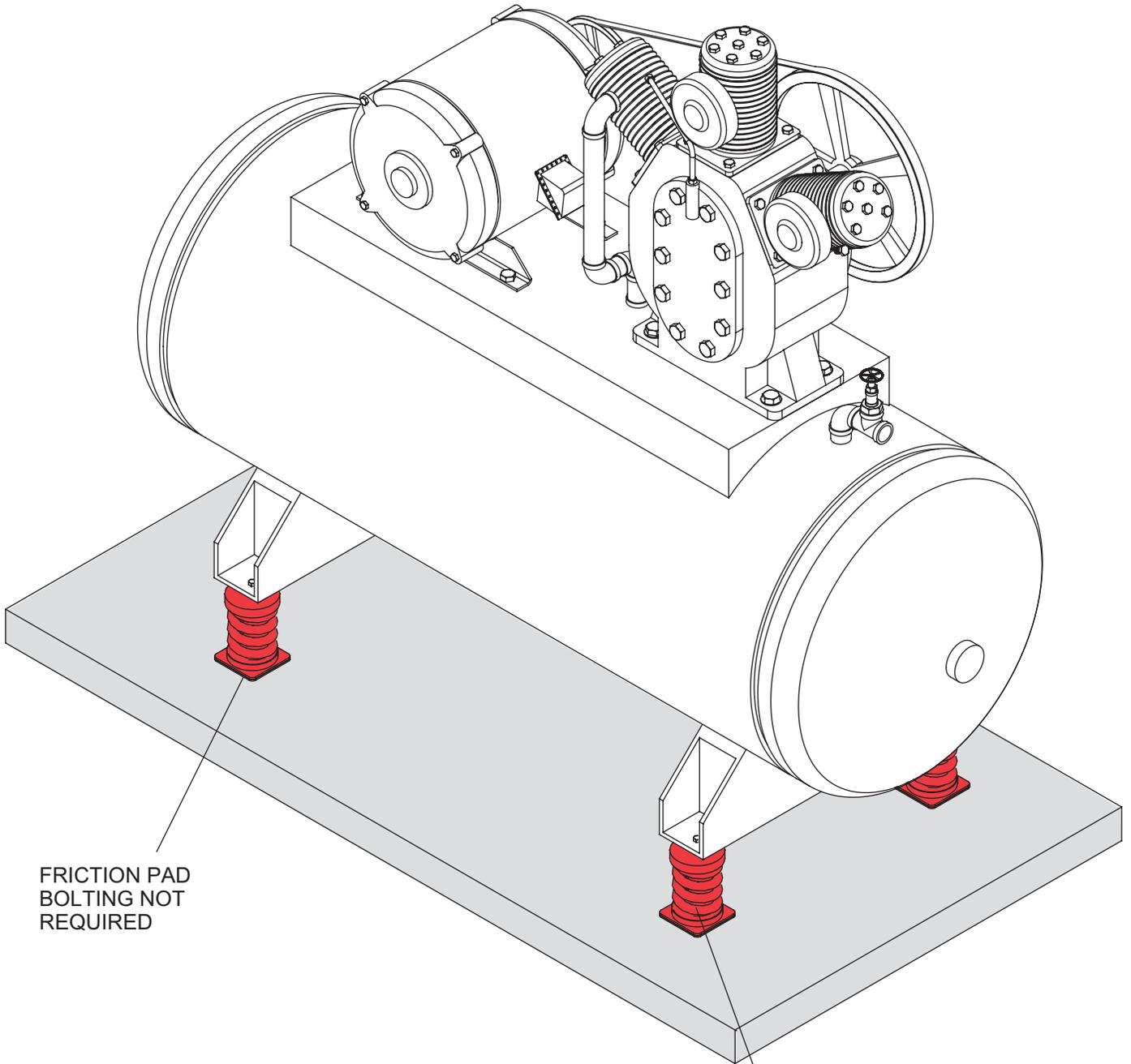
SLF SPRING MOUNTS  
WITH SPECIFIED  
DEFLECTION  
**SPECIFICATION B**

FRICION CUP  
BOLTING NOT  
REQUIRED

**BMK FLOATING  
CONCRETE BASE**  
MINIMUM 6" (150mm) OR  
1/12 LONGEST BASE DIMENSION  
**SPECIFICATION L**

STABILITY FURTHER  
IMPROVED BY  
SPREADING OF MOUNTS

**HORIZONTAL TANK TYPE COMPRESSOR**  
directly mounted on high deflection **SLF** Spring Mounts



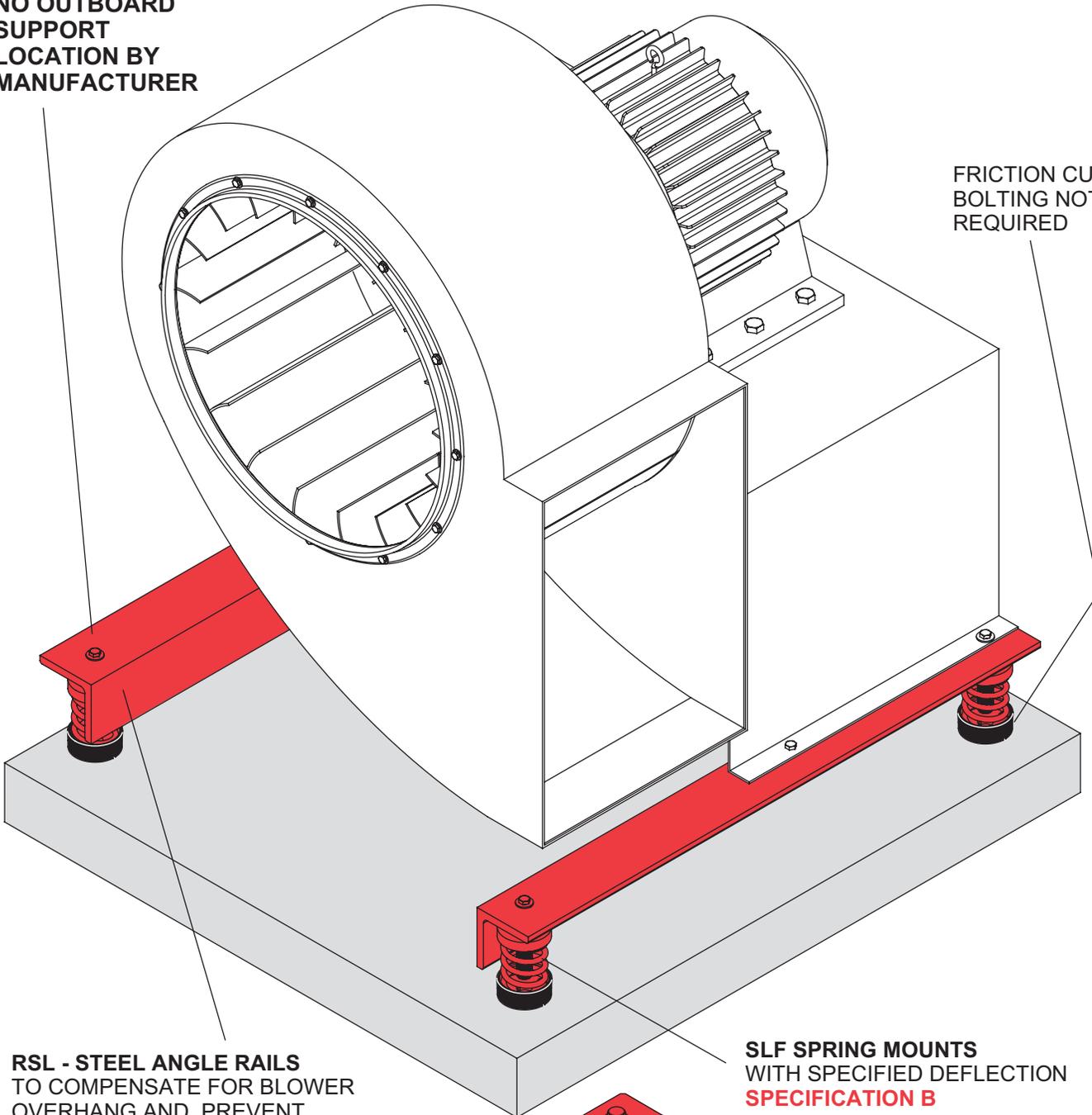
FRICION PAD  
BOLTING NOT  
REQUIRED

SLF SPRING MOUNT  
WITH SPECIFIED DEFLECTION  
**SPECIFICATION B**

**DIRECT DRIVE BLOWER** directly mounted on **RSL Rails** with 1" deflection **SLF Spring Mounts** for typical indoor or wind protected installation.  
(See note for **SLR Isolators** in windy areas)

NO OUTBOARD  
SUPPORT  
LOCATION BY  
MANUFACTURER

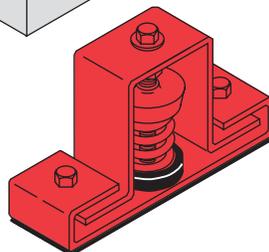
FRICTION CUP  
BOLTING NOT  
REQUIRED



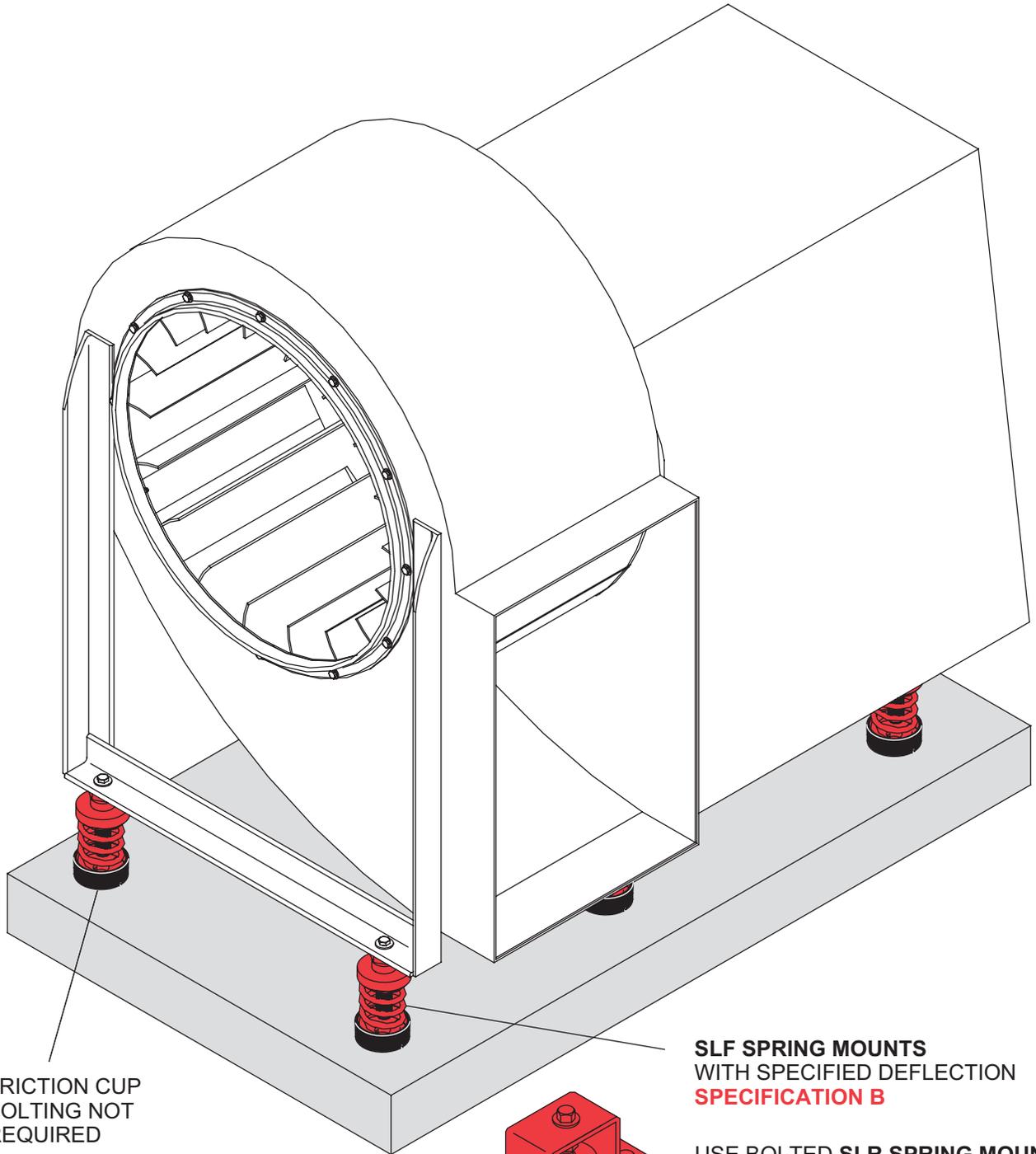
RSL - STEEL ANGLE RAILS  
TO COMPENSATE FOR BLOWER  
OVERHANG AND PREVENT  
TIPPING

SLF SPRING MOUNTS  
WITH SPECIFIED DEFLECTION  
**SPECIFICATION B**

USE BOLTED SLR SPRING MOUNTS  
IN WINDY AREAS  
**SPECIFICATION D**

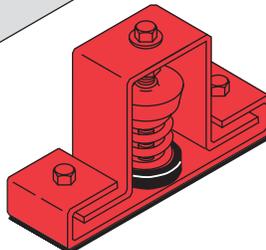


**UTILITY BLOWER** directly mounted on 1" deflection **SLF** Spring Mounts for typical indoor or wind protected installations.  
(See note for **SLR** Isolators in windy areas)



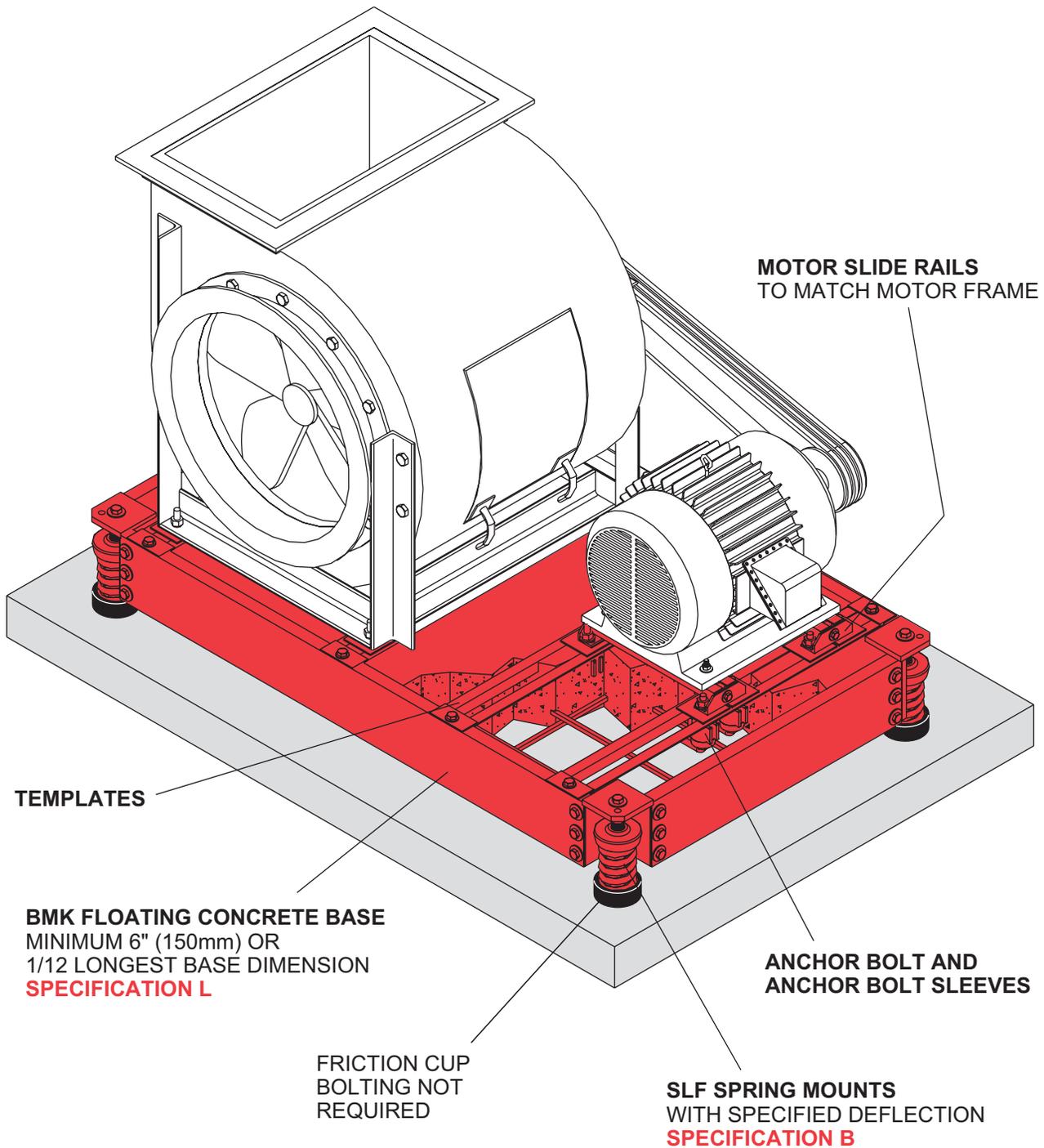
FRICTION CUP  
BOLTING NOT  
REQUIRED

**SLF SPRING MOUNTS  
WITH SPECIFIED DEFLECTION  
SPECIFICATION B**

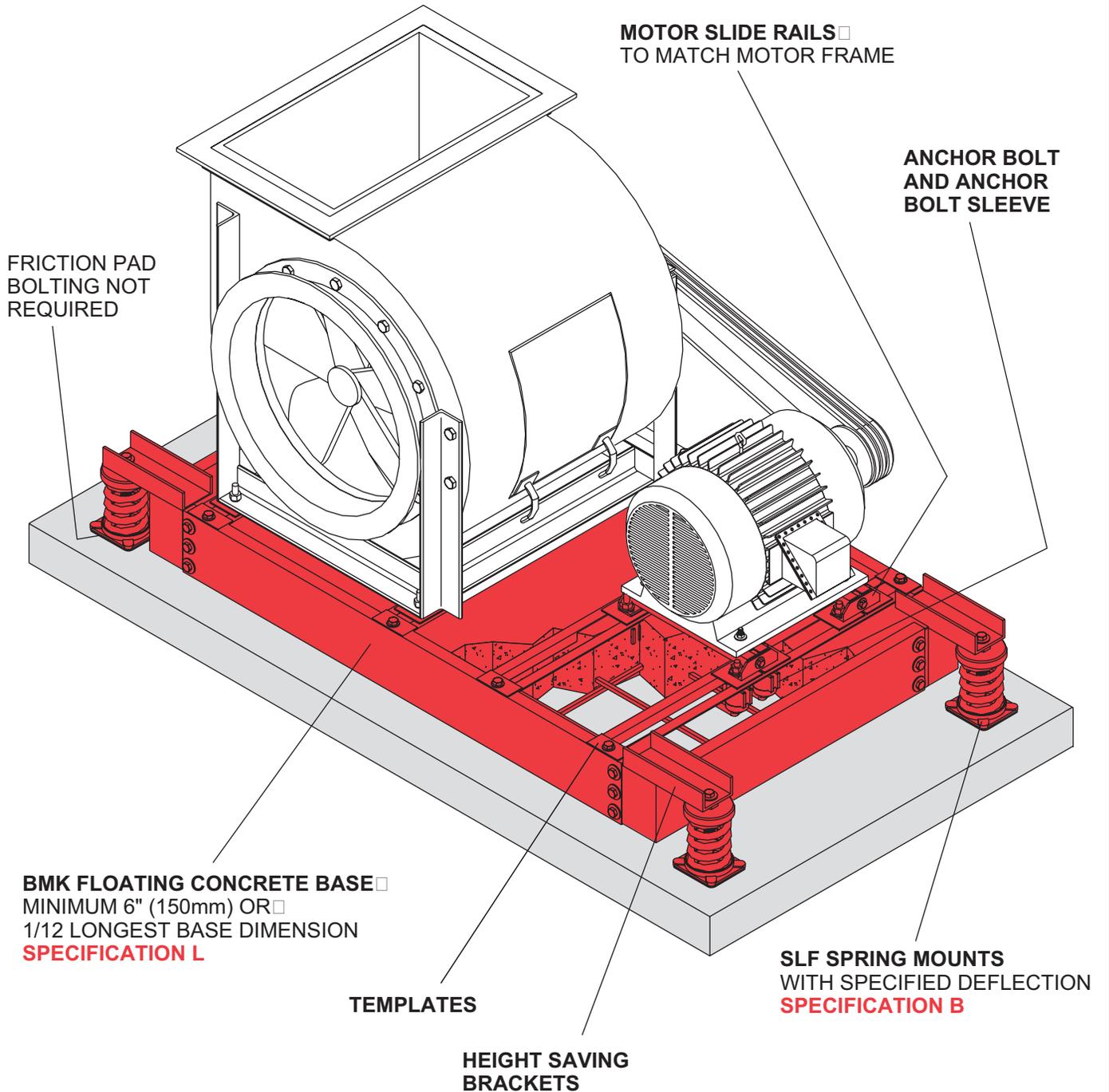


**USE BOLTED SLR SPRING MOUNTS  
IN WINDY AREAS  
SPECIFICATION D**

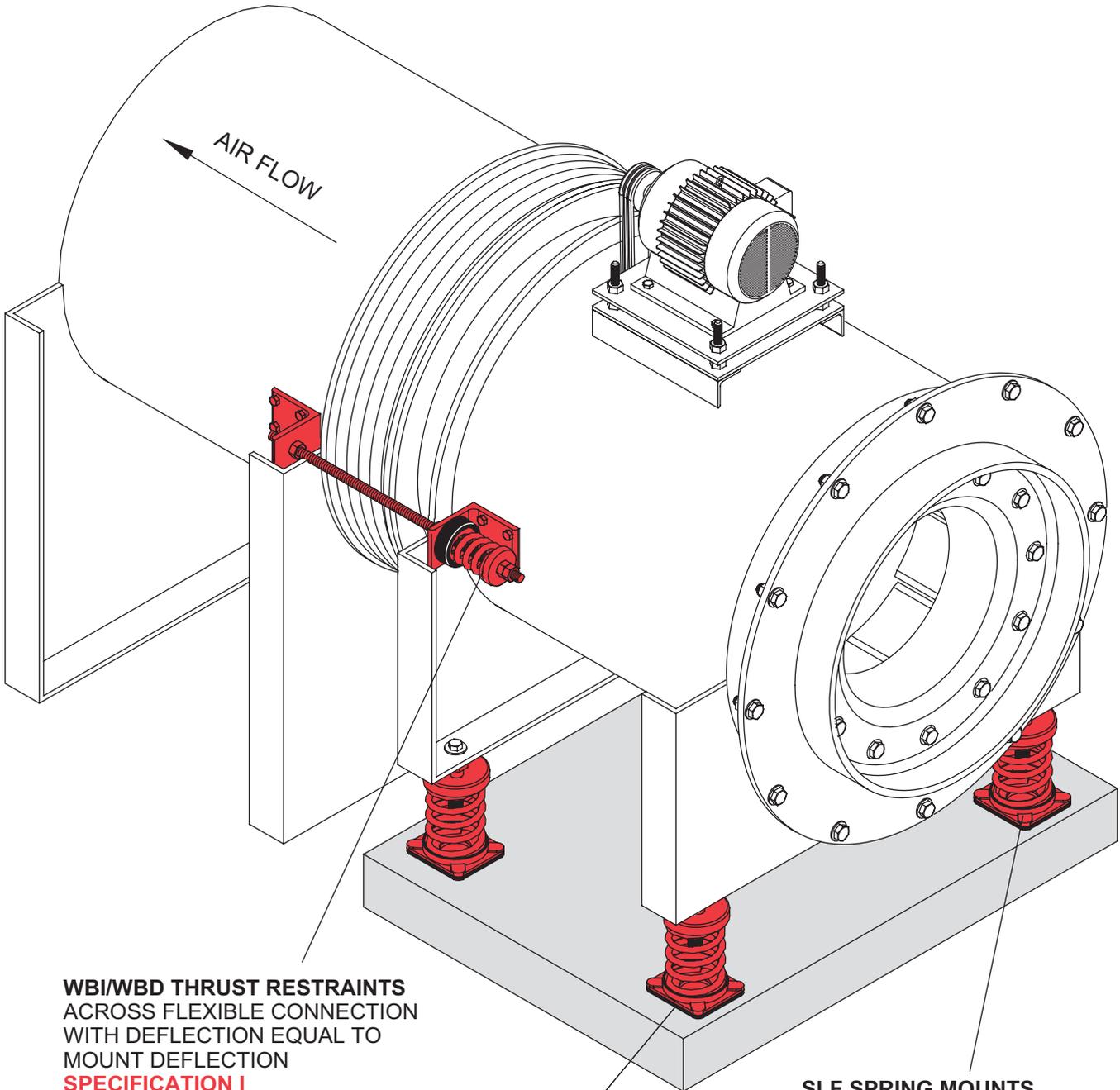
**CENTRIFUGAL BLOWER** on concrete filled **BMK** Base  
with built in corners and 1" deflection **SLF** Spring Mounts



**CENTRIFUGAL BLOWER** on concrete filled **BMK** Base  
with height saving brackets and high deflection **SLF** Spring Mounts



**FLOOR MOUNTED AXIAL BLOWER** with **WBI/WBD Thrust Restraints** directly mounted on **SLF Spring Mounts**.  
Use height saving brackets with springs over 11/2" deflection.

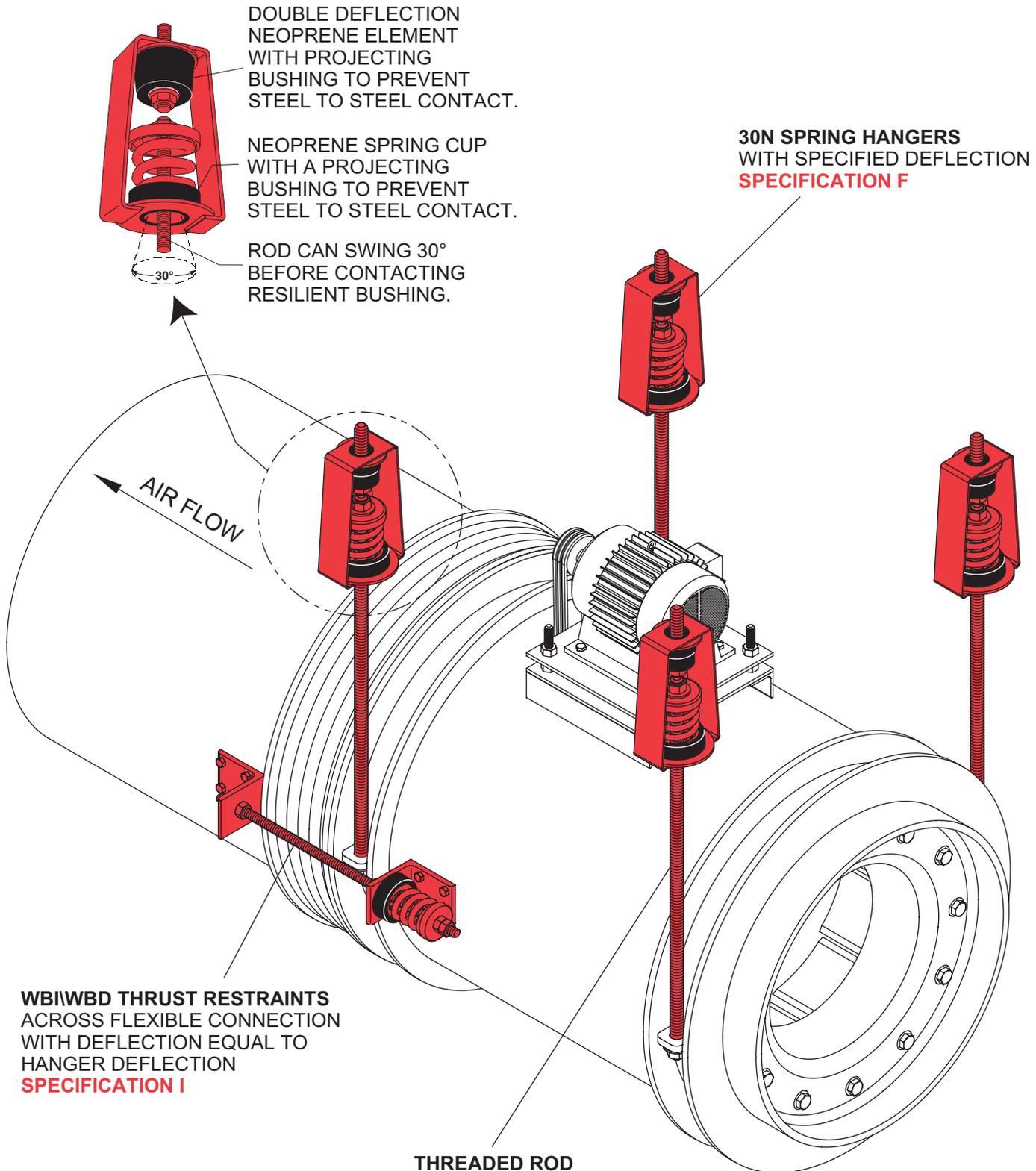


**WBI/WBD THRUST RESTRAINTS**  
ACROSS FLEXIBLE CONNECTION  
WITH DEFLECTION EQUAL TO  
MOUNT DEFLECTION  
**SPECIFICATION I**

**FRICTION PAD**  
BOLTING NOT  
REQUIRED

**SLF SPRING MOUNTS**  
WITH SPECIFIED DEFLECTION  
**SPECIFICATION B**

**AXIAL BLOWER** with **WBI/WBD Thrust Restraints**  
suspended from **30N Hangers**



DOUBLE DEFLECTION  
NEOPRENE ELEMENT  
WITH PROJECTING  
BUSHING TO PREVENT  
STEEL TO STEEL CONTACT.

NEOPRENE SPRING CUP  
WITH A PROJECTING  
BUSHING TO PREVENT  
STEEL TO STEEL CONTACT.

ROD CAN SWING 30°  
BEFORE CONTACTING  
RESILIENT BUSHING.

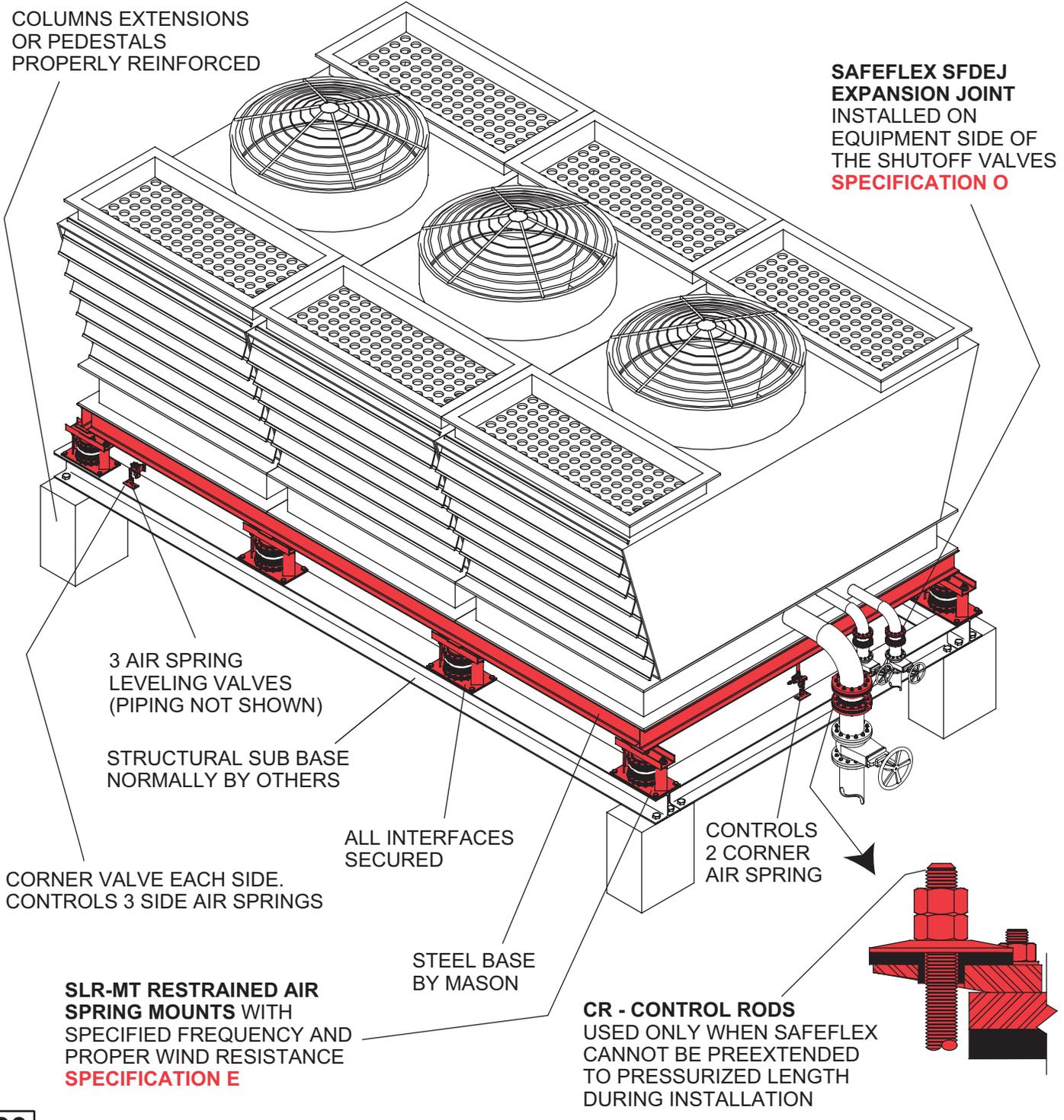
**30N SPRING HANGERS**  
WITH SPECIFIED DEFLECTION  
**SPECIFICATION F**

AIR FLOW

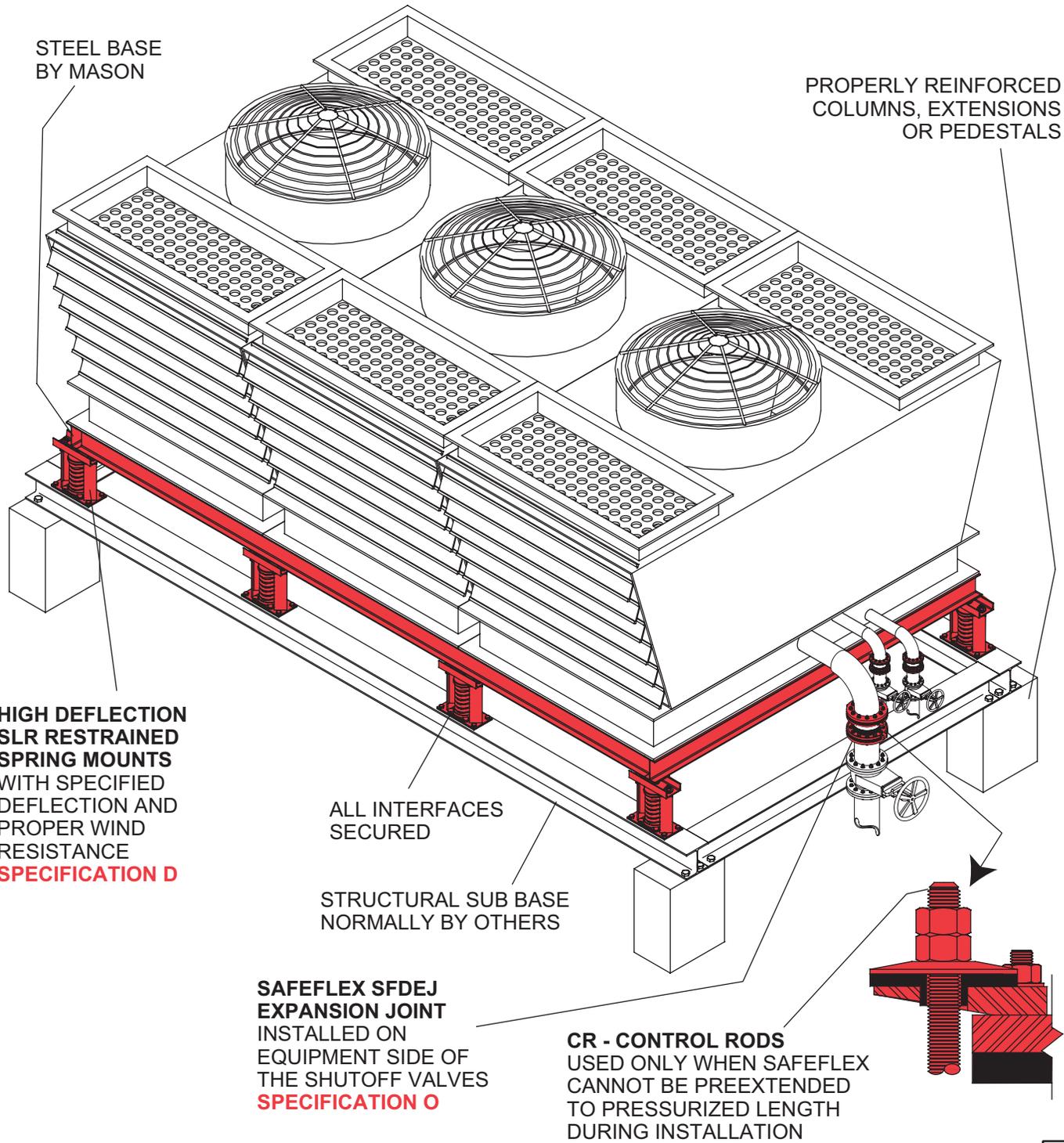
**WBI/WBD THRUST RESTRAINTS**  
ACROSS FLEXIBLE CONNECTION  
WITH DEFLECTION EQUAL TO  
HANGER DEFLECTION  
**SPECIFICATION I**

THREADED ROD

**LARGE MULTI-SECTIONED COOLING TOWER** secured to steel base and beam supports using **SLR-MT** wind resistant Twin Sphere Air Spring Mounts. **SAFEFLEX** Expansion Joints are installed in pipelines to reduce blade frequency vibration and noise.



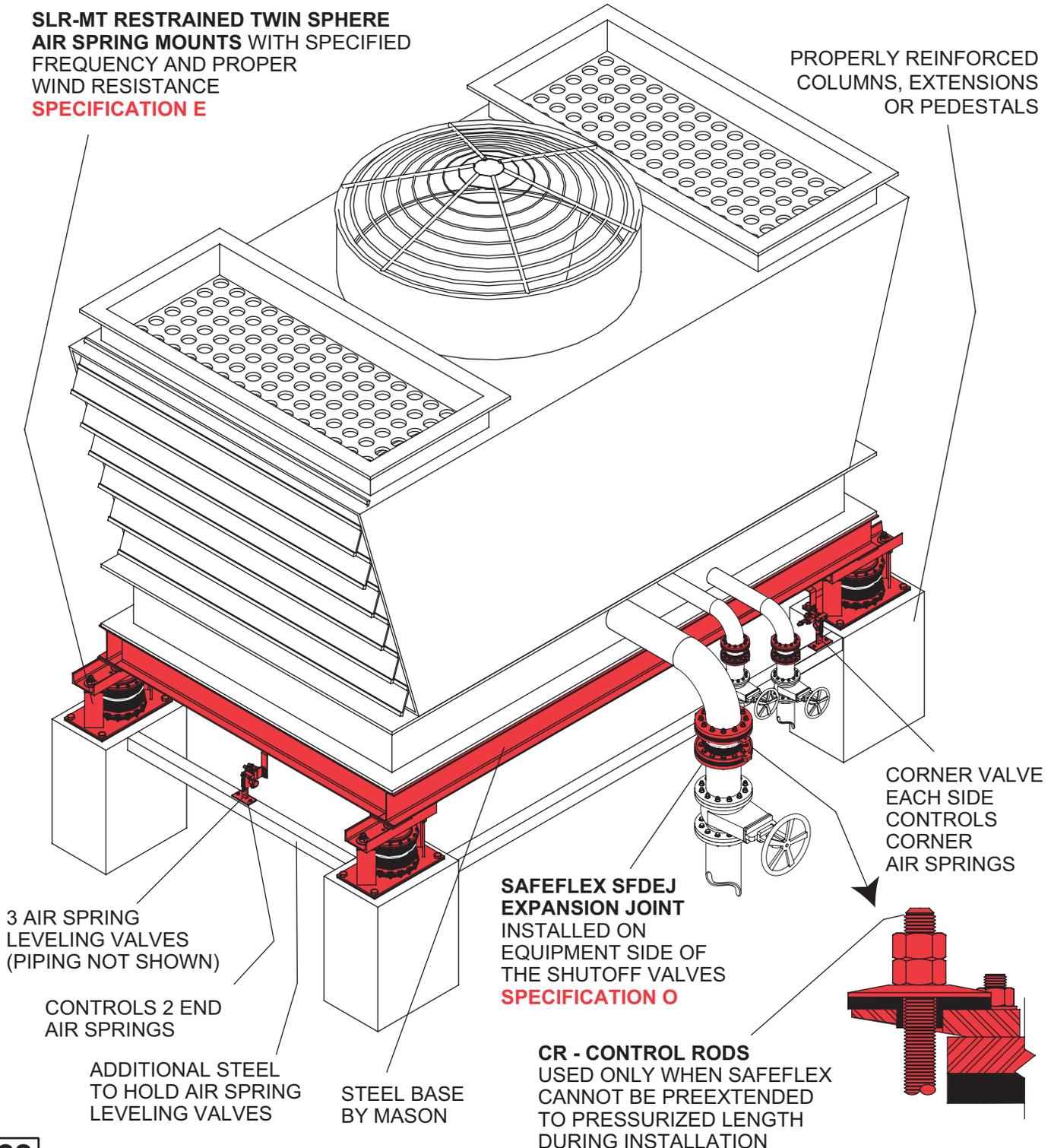
**LARGE MULTI-SECTIONED COOLING TOWER** secured to steel base and beam supports using high deflection **SLR** wind resistant Spring Mounts. **SAFEFLEX** Expansion Joints are installed in pipelines to reduce blade frequency vibration and noise.



**PACKAGED HVAC COOLING TOWER** on steel base with  
**SLR-MT** wind resistant Twin Sphere Air Spring Mounts.  
**SAFEFLEX** Expansion Joints are installed in pipelines  
to reduce blade frequency vibration and noise.

**SLR-MT RESTRAINED TWIN SPHERE  
AIR SPRING MOUNTS** WITH SPECIFIED  
FREQUENCY AND PROPER  
WIND RESISTANCE  
**SPECIFICATION E**

PROPERLY REINFORCED  
COLUMNS, EXTENSIONS  
OR PEDESTALS

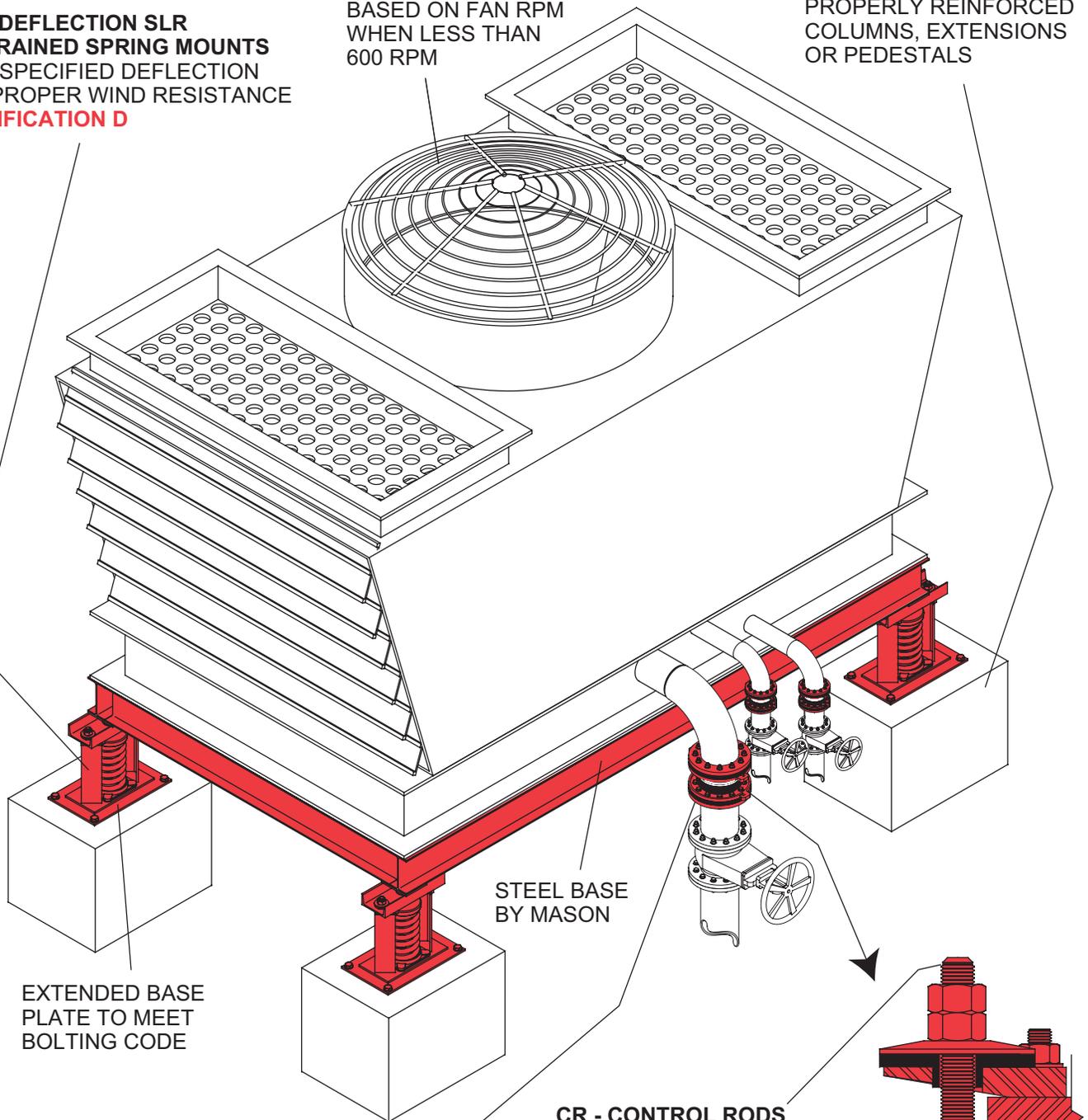


**ROOFTOP PACKAGED HVAC COOLING TOWER**  
on steel base and **SLR** wind resistant Spring Mounts.  
**SAFEFLEX** Expansion Joints are installed in pipelines  
to reduce blade frequency vibration and noise.

HIGH DEFLECTION SLR  
RESTRAINED SPRING MOUNTS  
WITH SPECIFIED DEFLECTION  
AND PROPER WIND RESISTANCE  
**SPECIFICATION D**

SPRING DEFLECTION  
BASED ON FAN RPM  
WHEN LESS THAN  
600 RPM

PROPERLY REINFORCED  
COLUMNS, EXTENSIONS  
OR PEDESTALS



**SAFEFLEX SFDEJ EXPANSION JOINT**  
INSTALLED ON EQUIPMENT SIDE OF  
THE SHUTOFF VALVES  
**SPECIFICATION O**

**CR - CONTROL RODS**  
USED ONLY WHEN SAFEFLEX  
CANNOT BE PREEXTENDED  
TO PRESSURIZED LENGTH  
DURING INSTALLATION

**LARGE TRANSFORMER** mounted on a **WFSL** or **KSL** Base supported by **MT Air Spring Mounts**. Schematic Only– Final installation to meet all safety regulations as well as electrical and other codes.

**WFSL BASE - WIDE FLANGE STEEL**  
BASE MINIMUM 6" (152mm) OR 1/10  
LONGEST BASE DIMENSION  
**SPECIFICATION J**

FRICITION PAD  
BOLTING NOT  
REQUIRED

CONTROLS 2 END  
AIR SPRINGS

**MT TWIN SPHERE AIR SPRINGS**  
MUST BE INSTALLED WITH AIR  
SPRING LEVELING VALVES  
**SPECIFICATION C**

**KSL BASE - STEEL CHANNEL**  
**REINFORCED AND FILLED WITH**  
**CONCRETE.** BASE MINIMUM 6" (152mm)  
OR 1/12 LONGEST BASE DIMENSION  
**SPECIFICATION L**

ALL OTHER CALLOUTS ABOVE APPLY HERE

COILS

COOLING  
FANS

CORNER VALVE  
EACH SIDE  
CONTROLS  
CORNER  
AIR SPRINGS

3 AIR SPRING  
LEVELING VALVES  
(PIPING NOT SHOWN)