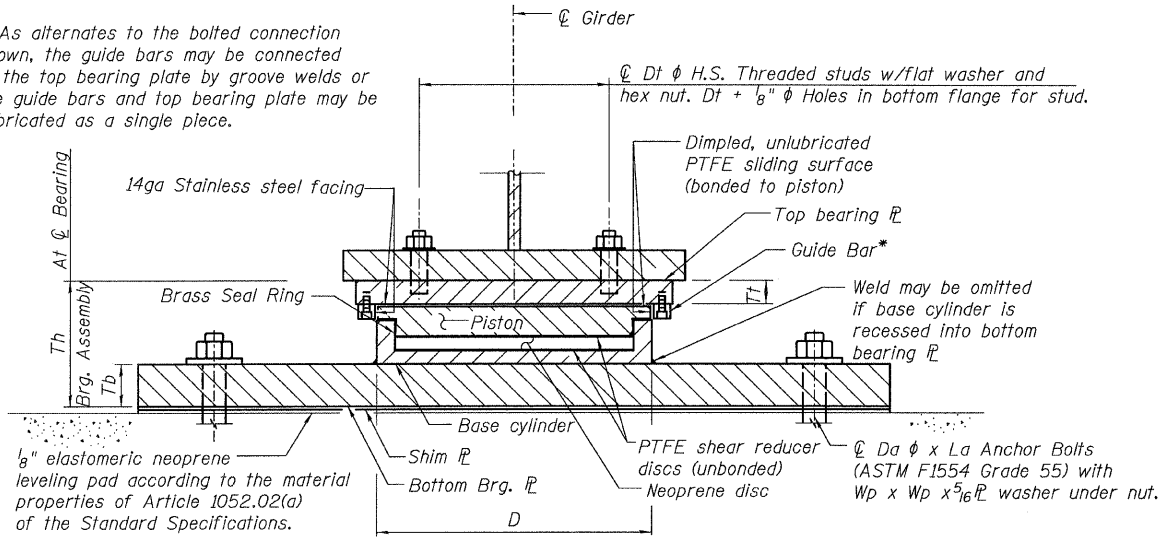
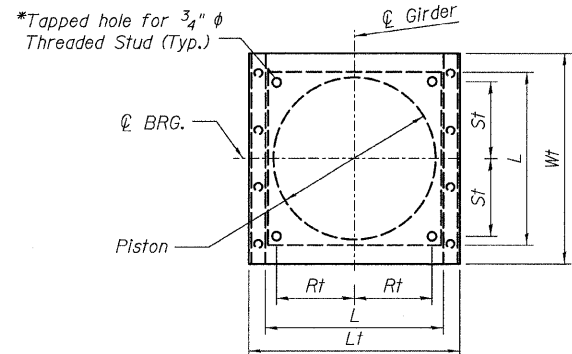


STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

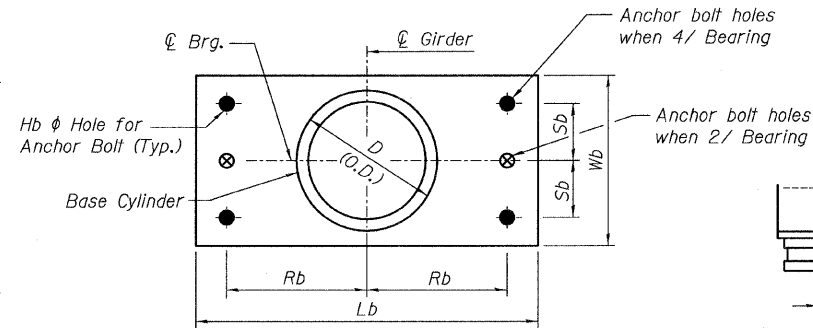
* As alternates to the bolted connection shown, the guide bars may be connected to the top bearing plate by groove welds or the guide bars and top bearing plate may be fabricated as a single piece.



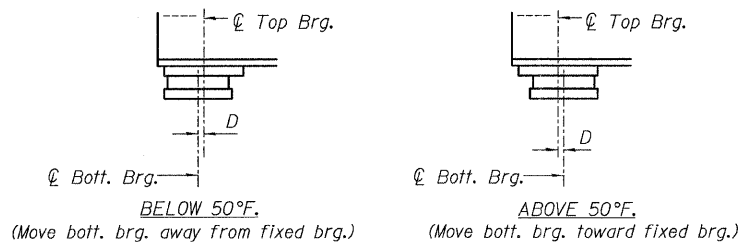
GUIDED EXPANSION HLMR BEARING



TOP BEARING ϕ - PISTON PLAN



BOTTOM BEARING ϕ AND BASE CYLINDER PLAN



SETTING ANCHOR BOLTS AT EXP. BRG.

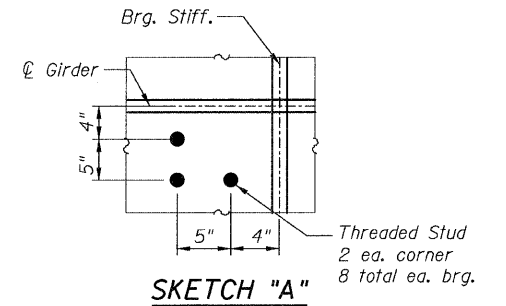
D = $\frac{1}{8}$ " per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

BILL OF MATERIAL

ITEM	UNIT	TOTAL
Furnishing HLMR Bearings, Guided Expansion, 150 kips	EACH	40
Furnishing HLMR Bearings, Guided Expansion, 250 kips	EACH	40
Furnishing HLMR Bearings, Guided Expansion, 350 kips	EACH	4
Furnishing HLMR Bearings, Guided Expansion, 900 kips	EACH	4

NOTES:

- All structural steel for the top and bottom bearing plates shall conform to the requirements of AASHTO M 270 Grade 50, unless otherwise noted.
- Anchor bolts shall be F1554, Gr. 55.
- Cost of top and bottom bearing plates, 1/8" elastomeric neoprene leveling pad, adjusting shims and threaded studs with washers shall be included in the unit price for "Furnishing HLMR Bearings," of the type selected.
- Two 1/8" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.
- Top plate shall be beveled to match the slope of girder flanges. Work this sheet with top of steel elevation sheets.



BEARING SCHEDULE

Type	Vertical Capacity (kips)	Lateral Capacity (kips)	Quantity Each	Location	Girders	Total Required Movement (in)	D (in)	L (in)	Th (in)	Top Plate / Bearing Assembly						Masonry Plate					Anchor Bolts				
										Wt (in)	Lt (in)	Tt (in)	Dt (in)	Rt (in)	St (in)	Wb (in)	Lb (in)	Tb (in)	Rb (in)	Sb (in)	Hb (in)	Qty per Brg.	Da (in)	La (in)	Wp (in)
HLMR Guided Expansion	150	15	36	C. Abut. 1 & 4	G3 - G20	2.0	9"	9"	5 $\frac{5}{8}$ "	14"	13 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "	4"	4"	12"	21"	1"	8 $\frac{3}{4}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	2	1"	12"	2 $\frac{1}{4}$ "
HLMR Guided Expansion	250	25	36	C. Abut. 2 & 3	G3 - G20	1.0	11 $\frac{1}{4}$ "	11 $\frac{1}{4}$ "	6 $\frac{5}{8}$ "	16 $\frac{1}{4}$ "	16"	1 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "	4"	4"	15"	24"	1 $\frac{1}{4}$ "	10 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	2	1"	12"	2 $\frac{1}{4}$ "
HLMR Guided Expansion	150	15	4	C. Abut 1 & 4	G2 and G21	2.0	9"	9"	6 $\frac{5}{8}$ "	14"	13 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ "	12"	28"	1 $\frac{1}{2}$ "	12 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	2	1"	12"	2 $\frac{1}{4}$ "
HLMR Guided Expansion	250	25	4	C. Abut 2 & 3	G2 and G21	1.0	11 $\frac{1}{4}$ "	11 $\frac{1}{4}$ "	6 $\frac{5}{8}$ "	16 $\frac{1}{4}$ "	16"	1 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ "	15"	28"	1 $\frac{1}{4}$ "	12 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	2	1"	12"	2 $\frac{1}{4}$ "
HLMR Guided Expansion	350	50	4	C. Abut 1 & 4	G1 and G22	2.0	13"	13"	8 $\frac{5}{8}$ "	18"	18 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "	1"	4 $\frac{1}{2}$ "	4 $\frac{1}{2}$ "	16"	34"	2 $\frac{1}{4}$ "	14 $\frac{3}{4}$ "	1 $\frac{3}{4}$ "	2	1 $\frac{1}{4}$ "	12"	2 $\frac{3}{4}$ "
HLMR Guided Expansion	900	150	4	C. Abut 2 & 3	G1 and G22	1.0	20 $\frac{1}{4}$ "	20 $\frac{1}{4}$ "	11 $\frac{3}{8}$ "	25 $\frac{1}{4}$ "	27 $\frac{1}{2}$ "	3"	1"	Sketch A	24"	36"	2 $\frac{1}{4}$ "	15 $\frac{1}{4}$ "	9 $\frac{1}{4}$ "	2"	4	1 $\frac{1}{2}$ "	18"	3"	

**HIGH LOAD
MULTI-ROTATIONAL
BEARINGS GUIDED EXPANSION
STRUCTURE NO. 016-0724**

TYLIN INTERNATIONAL	DESIGNED - EKH, PK	REVISIONS		SHEET NO. 136	F.A.I RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	CHECKED - AMD,	NAME	DATE		55	0711.2R & 1011.1BR	COOK	200	166
	DRAWN - EKH, PK				137 SHEETS	CONTRACT NO. 60L39			
	CHECKED - AMD,				FED. ROAD DIST. NO. 1 ILLINOIS FED. AID PROJECT				
	DATE - 08/02/10								

11/06/07 PM
p:\01345\beam and bearing fabrication\155e2\quaded.dgn
8/11/2010