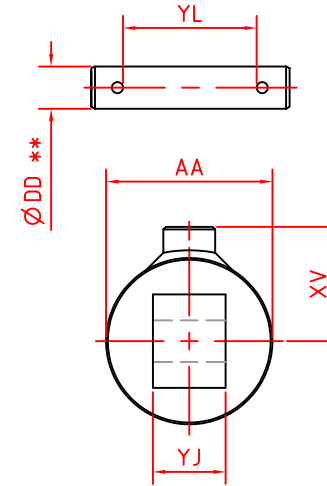
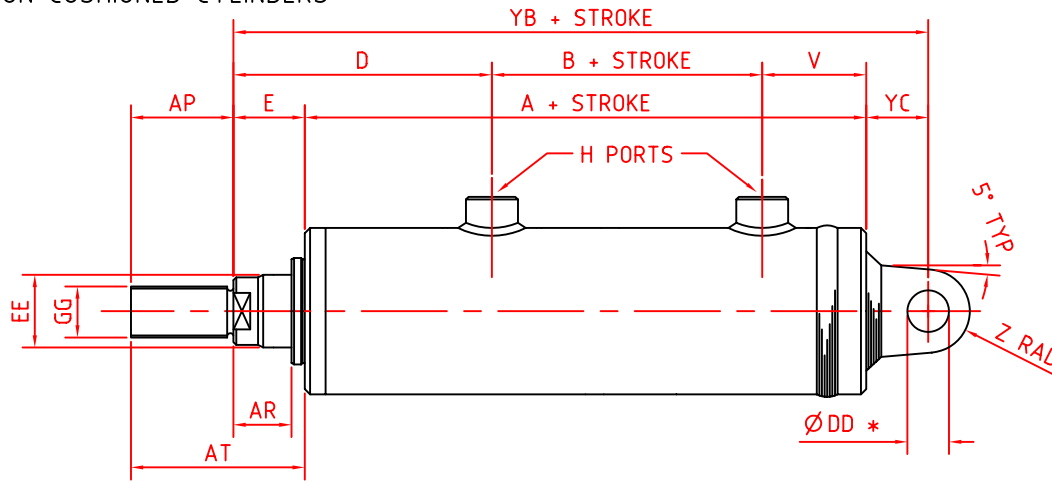


HR & HSH NON-CUSHIONED CYLINDERS

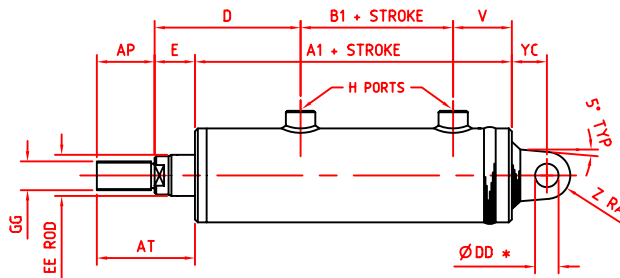
HR SHOWN



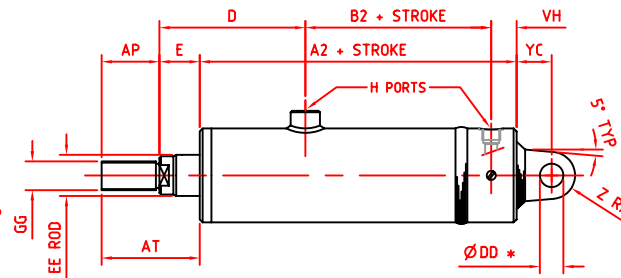
* FIT FOR HOLE DD: USE BS 1916 C H8
 ** FIT FOR PIN DD: USE BS 1916 C f8

| CYLINDER SIZE | EE ROD | GG THREAD | A | B | E | D | AP | V | AT | H BSPP | AA | XV | AR MIN | DD | YJ | YB | YC | YL | Z RAD | CYLINDER SIZE |
|---------------------------|----------------|---------------|------------------|-----------------|----------------|-----------------|-----------------|----------------|-----------------|--------|-----------------|----------------|----------------|----------------|----------------|------------------|----------------|-----------------|----------------|---------------------------|
| HR/HSH 15 1.50" BORE | 0.875 22.22 | 3/4" - 16UN | 5.00 127.00 | 1.50 38.10 | 0.875 22.22 | 3.125 79.37 | 1.125 28.57 | 1.25 31.75 | 2.00 50.80 | 3/8" | 2.00 50.80 | 1.75 44.45 | 0.50 12.70 | 0.50 12.70 | 1.00 25.40 | 6.625 168.27 | 0.75 19.05 | 1.75 44.45 | 0.50 12.70 | HR/HSH 15 1.50" BORE |
| HR/HSH 20 2.00" BORE | 1.00 25.40 | 3/4" - 16UN | 4.875 123.82 | 1.875 47.62 | 0.875 22.22 | 2.75 69.85 | 1.125 28.57 | 1.125 28.57 | 2.00 50.80 | 3/8" | 2.50 63.50 | 2.00 50.80 | 0.50 12.70 | 0.625 15.88 | 1.25 31.75 | 6.625 168.27 | 0.875 22.22 | 2.25 57.15 | 0.625 15.88 | HR/HSH 20 2.00" BORE |
| HR/HSH 25 2.50" BORE | 1.375 34.92 | 1" - 14UN | 5.375 136.52 | 2.125 53.98 | 1.125 28.58 | 3.125 79.37 | 1.625 41.28 | 1.25 31.75 | 2.75 69.85 | 1/2" | 3.00 76.20 | 2.25 57.15 | 0.75 19.05 | 0.75 19.05 | 1.50 38.10 | 7.625 193.67 | 1.125 28.57 | 2.625 68.68 | 0.75 19.05 | HR/HSH 25 2.50" BORE |
| HR/HSH 30 3.00" BORE | 1.75 44.45 | 1 1/4" - 12UN | 6.625 168.27 | 2.50 63.50 | 1.25 31.75 | 4.00 101.60 | 2.00 50.80 | 1.375 34.92 | 3.25 82.55 | 1/2" | 3.50 88.90 | 2.375 60.33 | 0.875 22.22 | 1.00 25.40 | 1.875 47.63 | 9.25 234.95 | 1.375 34.93 | 3.125 79.37 | 1.00 25.40 | HR/HSH 30 3.00" BORE |
| HR/HSH 35 3.50" BORE | 1.75 44.45 | 1 1/4" - 12UN | 7.00 177.80 | 2.50 63.50 | 1.25 31.75 | 4.00 101.60 | 2.00 50.80 | 1.75 44.45 | 3.25 82.55 | 3/4" | 4.00 101.60 | 2.875 73.03 | 0.875 22.22 | 1.00 25.40 | 1.875 47.63 | 9.625 244.48 | 1.375 34.93 | 3.125 79.37 | 1.00 25.40 | HR/HSH 35 3.50" BORE |
| HR/HSH 40 4.00" BORE | 2.00 50.80 | 1 1/2" - 12UN | 7.625 193.67 | 2.625 66.68 | 1.375 34.92 | 4.50 114.30 | 2.25 57.15 | 1.875 47.63 | 3.625 92.08 | 3/4" | 4.50 114.30 | 3.25 82.55 | 0.875 22.22 | 1.25 31.75 | 2.375 60.33 | 10.625 269.88 | 1.625 41.28 | 4.125 104.78 | 1.25 31.75 | HR/HSH 40 4.00" BORE |
| HR/HSH 45 4.50" BORE | 2.00 50.80 | 1 1/2" - 12UN | 8.375 212.72 | 3.00 76.20 | 1.375 34.92 | 4.50 114.30 | 2.25 57.15 | 2.25 57.15 | 3.625 92.08 | 3/4" | 5.125 130.18 | 3.50 88.90 | 0.875 22.22 | 1.25 31.75 | 2.375 60.33 | 11.375 289.93 | 1.625 41.28 | 4.125 104.78 | 1.25 31.75 | HR/HSH 45 4.50" BORE |
| HR/HSH 50 5.00" BORE | 2.50 63.50 | 1 3/8" - 12UN | 8.625 219.08 | 3.00 76.20 | 1.50 38.10 | 4.875 123.83 | 3.00 76.20 | 2.25 57.15 | 4.50 114.30 | 1" | 5.625 142.88 | 3.875 98.43 | 1.00 25.40 | 1.75 44.45 | 2.75 69.85 | 12.375 314.33 | 2.25 57.15 | 4.75 120.65 | 1.75 44.45 | HR/HSH 50 5.00" BORE |
| HR/HSH 55 5.50" BORE | 2.50 63.50 | 1 3/8" - 12UN | 9.375 238.13 | 3.625 92.08 | 1.50 38.10 | 5.00 127.00 | 3.00 76.20 | 2.25 57.15 | 4.50 114.30 | 1" | 6.125 155.58 | 4.25 107.95 | 1.00 25.40 | 1.75 44.45 | 2.75 69.85 | 13.125 333.38 | 2.25 57.15 | 4.75 120.65 | 1.75 44.45 | HR/HSH 55 5.50" BORE |
| HR/HSH 60 6.00" BORE | 3.00 76.20 | 2 1/4" - 12UN | 10.00 254.00 | 3.875 98.43 | 1.50 38.10 | 5.125 130.18 | 3.50 88.90 | 2.50 63.50 | 5.00 127.00 | 1" | 6.625 168.28 | 4.50 114.30 | 1.00 25.40 | 2.00 50.80 | 3.25 82.55 | 14.00 355.60 | 2.50 63.50 | 5.75 146.05 | 2.00 50.80 | HR/HSH 60 6.00" BORE |
| HR/HSH 65 6.50" BORE | 3.00 76.20 | 2 1/4" - 12UN | 10.25 260.35 | 4.00 101.60 | 1.50 38.10 | 5.25 133.25 | 3.50 88.90 | 2.50 63.50 | 5.00 127.00 | 1" | 7.25 184.15 | 4.75 120.65 | 1.00 25.40 | 2.00 50.80 | 3.25 82.55 | 14.25 361.95 | 2.50 63.50 | 5.75 146.06 | 2.00 50.80 | HR/HSH 65 6.50" BORE |
| HR/HSH 70 7.00" BORE | 3.50 88.90 | 2 1/2" - 12UN | 11.75 298.45 | 4.50 114.30 | 1.50 38.10 | 6.00 152.40 | 3.50 88.90 | 2.75 69.85 | 5.00 127.00 | 1 1/4" | 7.75 196.85 | 5.25 133.35 | 1.00 25.40 | 2.50 63.50 | 3.75 95.25 | 16.25 412.75 | 3.00 76.20 | 6.50 165.10 | 2.50 63.50 | HR/HSH 70 7.00" BORE |
| HR/HSH 75 7.50" BORE | 3.50 88.90 | 2 1/2" - 12UN | 12.25 311.15 | 4.25 107.95 | 1.50 38.10 | 6.50 165.10 | 3.50 88.90 | 3.00 76.20 | 5.00 127.00 | 1 1/4" | 8.50 215.90 | 5.50 139.70 | 1.00 25.40 | 2.50 63.50 | 3.75 95.25 | 16.75 425.45 | 3.00 76.20 | 6.50 165.10 | 2.50 63.50 | HR/HSH 75 7.50" BORE |
| HR/HSH 80 8.00" BORE | 4.00 101.60 | 3" - 12UN | 13.25 336.55 | 5.00 127.00 | 1.50 38.10 | 6.50 165.10 | 4.00 101.60 | 3.25 82.55 | 5.50 139.70 | 1 1/4" | 9.00 228.60 | 6.00 152.40 | 1.00 25.40 | 3.00 76.20 | 4.25 107.95 | 18.25 463.55 | 3.50 88.90 | 7.25 184.15 | 3.00 76.20 | HR/HSH 80 8.00" BORE |
| HR/HSH 90 9.00" BORE | 4.50 114.30 | 3" - 12UN | 14.875 377.83 | 6.00 152.40 | 1.50 38.10 | 7.00 177.80 | 4.00 101.60 | 3.375 85.73 | 5.50 139.70 | 1 1/4" | 10.00 254.00 | 6.50 165.10 | 1.00 25.40 | 3.50 88.90 | 4.50 114.30 | 20.375 517.53 | 4.00 101.60 | 8.50 215.90 | 3.50 88.90 | HR/HSH 90 9.00" BORE |
| HR/HSH 100 10.00" BORE | 5.00 127.00 | 3 3/4" - 12UN | 15.625 396.88 | 6.125 155.58 | 1.50 38.10 | 7.50 190.50 | 4.375 111.13 | 3.50 88.90 | 5.875 149.22 | 1 1/4" | 11.00 279.40 | 7.00 177.80 | 1.00 25.40 | 3.50 88.90 | 5.00 127.00 | 21.125 536.58 | 4.00 101.60 | 9.00 228.60 | 3.50 88.90 | HR/HSH 100 10.00" BORE |

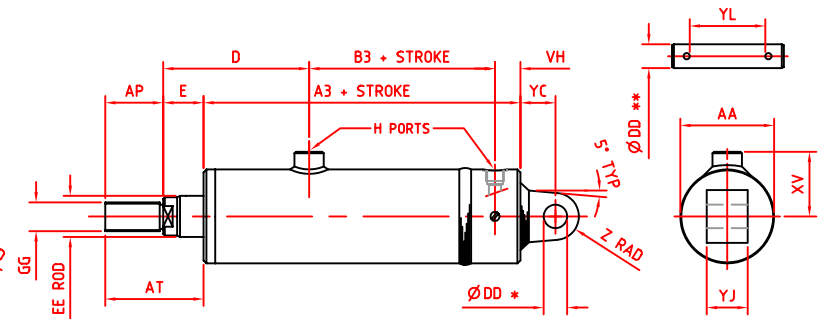
CUSHION FRONT CF



CUSHION REAR CR



CUSHION FRONT & REAR CF/CR



* FIT FOR HOLE DD: USE BS 1916 C HB
 ** FIT FOR PIN DD: USE BS 1916 C FB

| CYLINDER SIZE | EE ROD | GG THREAD | A1 | A2 | A3 | B1 | B2 | B3 | E | D | AP | V | VH | AT | H BSPP | AA | XV | DD | YJ | YC | YL | Z RAD |
|---------------------------|----------------|---------------|------------------|------------------|------------------|-----------------|------------------|------------------|----------------|-----------------|-----------------|----------------|----------------|-----------------|--------|-----------------|----------------|----------------|----------------|----------------|-----------------|----------------|
| HR/SHS 15 1.50" BORE | 0.875 22.22 | 3/4" - 16UN | 5.875 149.23 | 6.375 161.93 | 7.25 184.15 | 2.375 60.33 | 3.375 85.73 | 4.25 107.95 | 0.875 22.22 | 3.125 79.37 | 1.125 28.57 | 1.25 31.75 | 0.75 19.05 | 2.00 50.80 | 3/8" | 2.00 50.80 | 1.75 44.45 | 0.50 12.70 | 1.00 25.40 | 0.75 19.05 | 1.75 44.45 | 0.50 12.70 |
| HR/SHS 20 2.00" BORE | 1.00 25.40 | 3/4" - 16UN | 5.875 149.23 | 6.375 161.93 | 7.375 187.33 | 2.875 73.03 | 3.75 95.25 | 4.75 120.65 | 0.875 22.22 | 2.75 69.85 | 1.125 28.57 | 1.125 28.57 | 0.75 19.05 | 2.00 50.80 | 3/8" | 2.50 63.50 | 2.00 50.80 | 0.625 15.88 | 1.25 31.75 | 0.875 22.22 | 2.25 57.15 | 0.625 15.88 |
| HR/SHS 25 2.50" BORE | 1.375 34.92 | 1" - 14UN | 6.375 161.93 | 6.875 174.63 | 7.875 200.03 | 3.125 79.38 | 4.00 101.60 | 5.00 127.00 | 1.125 28.58 | 3.125 79.37 | 1.625 41.28 | 1.25 31.75 | 0.875 22.22 | 2.75 69.85 | 1/2" | 3.00 76.20 | 2.25 57.15 | 0.75 19.05 | 1.50 38.10 | 1.125 28.57 | 2.625 66.88 | 0.75 19.05 |
| HR/SHS 30 3.00" BORE | 1.75 44.45 | 1 1/4" - 12UN | 8.125 206.38 | 8.125 206.38 | 9.625 244.48 | 4.00 101.60 | 4.50 114.30 | 6.00 152.40 | 1.25 31.75 | 4.00 101.60 | 2.00 50.80 | 1.375 34.92 | 0.875 22.22 | 3.25 82.55 | 1/2" | 3.50 88.90 | 2.375 60.33 | 1.00 25.40 | 1.875 47.63 | 1.375 34.93 | 3.125 79.37 | 1.00 25.40 |
| HR/SHS 35 3.50" BORE | 1.75 44.45 | 1 1/4" - 12UN | 8.625 219.08 | 8.375 212.73 | 10.00 254.00 | 4.125 104.78 | 4.75 120.65 | 6.375 161.93 | 1.25 31.75 | 4.00 101.60 | 2.00 50.80 | 1.75 44.45 | 0.875 22.22 | 3.25 82.55 | 3/4" | 4.00 101.60 | 2.875 73.03 | 1.00 25.40 | 1.875 47.63 | 1.375 34.93 | 3.125 79.37 | 1.00 25.40 |
| HR/SHS 40 4.00" BORE | 2.00 50.80 | 1 1/2" - 12UN | 9.375 238.13 | 8.875 225.43 | 10.625 269.88 | 4.375 111.13 | 4.875 138.83 | 6.625 168.28 | 1.375 34.92 | 4.50 114.30 | 2.25 57.15 | 1.875 47.63 | 0.875 22.22 | 3.625 92.08 | 3/4" | 4.50 114.30 | 3.25 82.55 | 1.25 31.75 | 2.375 60.33 | 1.625 41.28 | 4.125 104.78 | 1.25 31.75 |
| HR/SHS 45 4.50" BORE | 2.00 50.80 | 1 1/2" - 12UN | 10.125 257.18 | 9.625 244.48 | 11.375 288.93 | 4.75 120.65 | 5.625 142.88 | 7.375 187.33 | 1.375 34.92 | 4.50 114.30 | 2.25 57.15 | 2.25 57.15 | 0.875 22.22 | 3.625 92.08 | 3/4" | 5.125 130.18 | 3.50 88.90 | 1.25 31.75 | 2.375 60.33 | 1.625 41.28 | 4.125 104.78 | 1.25 31.75 |
| HR/SHS 50 5.00" BORE | 2.50 63.50 | 1 3/8" - 12UN | 10.625 269.88 | 10.625 269.88 | 12.625 320.68 | 5.00 127.00 | 5.875 149.23 | 7.875 200.03 | 1.50 38.10 | 4.875 123.83 | 3.00 76.20 | 2.25 57.15 | 1.375 34.93 | 4.50 114.30 | 1" | 5.625 142.88 | 3.875 98.43 | 1.75 44.45 | 2.75 69.85 | 2.25 57.15 | 4.75 120.65 | 1.75 44.45 |
| HR/SHS 55 5.50" BORE | 2.50 63.50 | 1 3/8" - 12UN | 11.25 285.75 | 11.375 288.93 | 13.25 336.55 | 5.50 139.70 | 6.50 165.10 | 8.375 212.73 | 1.50 38.10 | 5.00 127.00 | 3.00 76.20 | 2.25 57.15 | 1.375 34.93 | 4.50 114.30 | 1" | 6.125 155.58 | 4.25 107.95 | 1.75 44.45 | 2.75 69.85 | 2.25 57.15 | 4.75 120.65 | 1.75 44.45 |
| HR/SHS 60 6.00" BORE | 3.00 76.20 | 2 1/4" - 12UN | 12.00 304.80 | 12.00 304.80 | 14.00 355.60 | 5.875 149.22 | 7.00 177.80 | 9.00 228.60 | 1.50 38.10 | 5.125 130.18 | 3.50 88.90 | 2.50 63.50 | 1.375 34.93 | 5.00 127.00 | 1" | 6.625 168.28 | 4.50 114.30 | 2.00 50.80 | 3.25 82.55 | 2.50 63.50 | 5.75 146.05 | 2.00 50.80 |
| HR/SHS 65 6.50" BORE | 3.00 76.20 | 2 1/4" - 12UN | 12.125 307.98 | 12.25 311.15 | 14.125 358.78 | 5.875 149.22 | 7.125 180.98 | 9.00 228.60 | 1.50 38.10 | 5.25 133.25 | 3.50 88.90 | 2.50 63.50 | 1.375 34.93 | 5.00 127.00 | 1" | 7.25 184.15 | 4.75 120.65 | 2.00 50.80 | 3.25 82.55 | 2.50 63.50 | 5.75 146.06 | 2.00 50.80 |
| HR/SHS 70 7.00" BORE | 3.50 88.90 | 2 1/2" - 12UN | 14.50 368.30 | 15.00 381.00 | 17.75 450.85 | 7.25 184.15 | 8.50 215.90 | 11.25 288.75 | 1.50 38.10 | 6.00 152.40 | 3.50 88.90 | 2.75 69.85 | 2.00 50.80 | 5.00 127.00 | 1 1/4" | 7.75 196.85 | 5.25 133.35 | 2.50 63.50 | 3.75 95.25 | 3.00 76.20 | 6.50 165.10 | 2.50 63.50 |
| HR/SHS 75 7.50" BORE | 3.50 88.90 | 2 1/2" - 12UN | 15.00 381.00 | 15.50 393.70 | 18.25 463.55 | 7.00 177.80 | 8.50 215.90 | 11.25 288.75 | 1.50 38.10 | 6.50 165.10 | 3.50 88.90 | 3.00 76.20 | 2.00 50.80 | 5.00 127.00 | 1 1/4" | 8.50 215.90 | 5.50 139.70 | 2.50 63.50 | 3.75 95.25 | 3.00 76.20 | 6.50 165.10 | 2.50 63.50 |
| HR/SHS 80 8.00" BORE | 4.00 101.60 | 3" - 12UN | 16.125 409.58 | 16.375 415.93 | 19.25 488.95 | 7.875 200.03 | 9.125 230.12 | 12.00 304.80 | 1.50 38.10 | 6.50 165.10 | 4.00 101.60 | 3.25 82.55 | 2.25 57.15 | 5.50 139.70 | 1 1/4" | 9.00 228.60 | 6.00 152.40 | 3.00 76.20 | 4.25 107.95 | 3.50 88.90 | 7.25 184.15 | 3.00 76.20 |
| HR/SHS 90 9.00" BORE | 4.50 114.30 | 3" - 12UN | 17.375 441.33 | 17.875 454.03 | 20.375 517.53 | 8.50 215.90 | 10.125 257.18 | 12.625 320.68 | 1.50 38.10 | 7.00 177.80 | 4.00 101.60 | 3.375 85.73 | 2.25 57.15 | 5.50 139.70 | 1 1/4" | 10.00 254.00 | 6.50 165.10 | 3.50 88.90 | 4.50 114.30 | 4.00 101.60 | 8.50 215.90 | 3.50 88.90 |
| HR/SHS 100 10.00" BORE | 5.00 127.00 | 3 3/4" - 12UN | 18.125 460.38 | 18.50 469.90 | 21.00 533.40 | 8.625 219.08 | 10.25 260.35 | 12.75 323.85 | 1.50 38.10 | 7.50 190.50 | 4.375 111.13 | 3.50 88.90 | 2.25 57.15 | 5.875 149.22 | 1 1/4" | 11.00 279.40 | 7.00 177.80 | 3.50 88.90 | 5.00 127.00 | 4.00 101.60 | 9.00 228.60 | 3.50 88.90 |