



WARREN MORRISON
UK LTD



SCOTCH YOKE
PNEUMATIC ACTUATORS
SD & SS SERIES

Warren-Morrison Valves

Established in 1949 in the United Kingdom, Warren-Morrison UK Ltd. has been manufacturing its own unique range of industrial valves and actuators for over 70 years. Benefitting from our own internal rubber mould department, machine shop and development and test facilities, we maintain total control over production and quality through continuous 'in process inspection'. Our dedication towards future development has continued to ensure our market position as a select industrial valve and accessories manufacturer and supplier.

Warren-Morrison Pneumatic Actuator

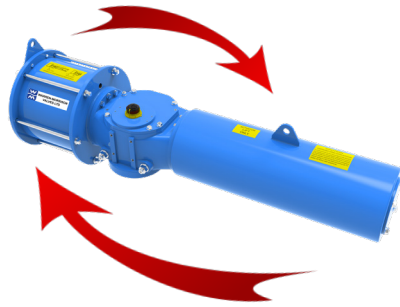
The Warren Morrison S Series Pneumatic Actuator is a scotch yoke quarter turn actuator. It comes in single acting with fail safe position and double acting configuration. Designed to cover a wide span of torques with high torque values. As well as being rugged and reliable for extended use, the actuator body comes in epoxy coated carbon steel and ductile iron components. The bottom mounting is designed to suit ISO 5211 and DIN 3337 while the top mounting is designed to suit VDI/VDE 3845 NAMUR.

Actuator Features:

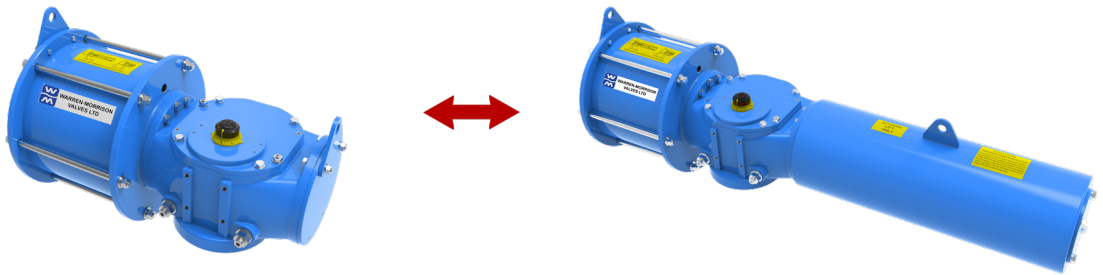
- Modular design providing the customer the ease of customisation and modification at site, including changing the fail position; fail-safe position and addition of a manual override.
- The centre body is pre-drilled from both sides for ease of mounting accessories.
- Rigid ductile iron and carbon steel body material combination with epoxy coating covering the complete actuator.
- IP67 rating.
- Compact design with extremely high torque outputs.
- Clear indicator with gradual scale to show the position of the valve connected to the actuator.
- Compatibility to international standards for the top and bottom flange drilling.
- Various designs and material compatibility to suit different temperature ranges.
- Various types of coating to suit most environment.
- Different adapters can be provided to suit numerous types of valves.
- Various types of manual override that suits the various models of the scotch yoke actuator.
- For the spring return module, a locking nut is added to provide additional safety feature.
- Self lubrication bearings that provide no metal to metal contact between the guide rod and the drive mechanism.
- Integral travel stop with a range of 5 degrees adjustment.

Modular Design Features

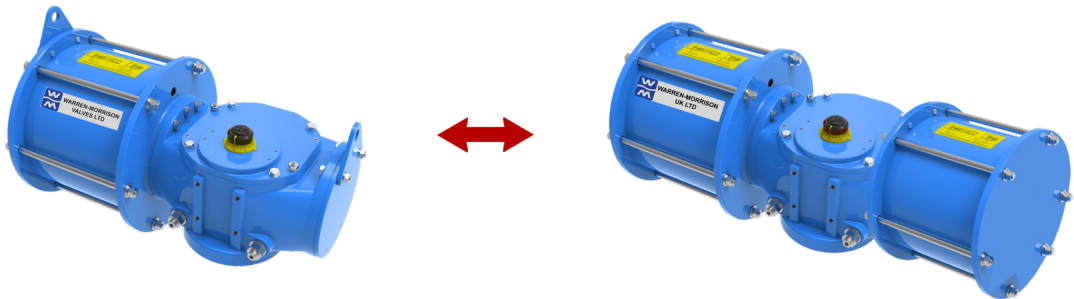
The ability to change the fail position at site by exchanging the spring module and the pneumatic pressure module.



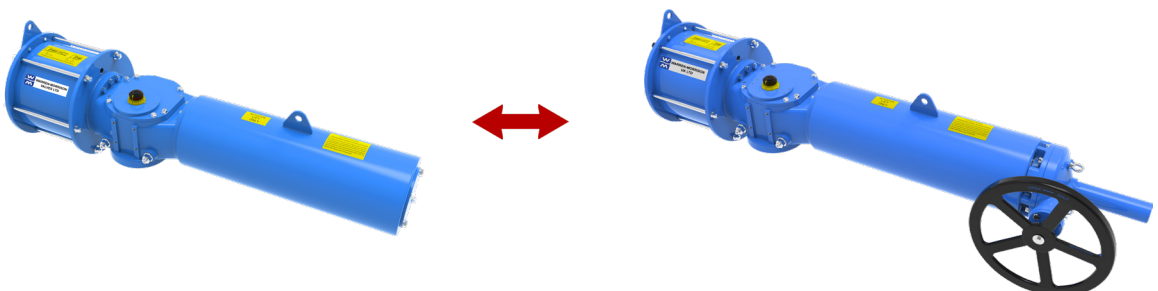
The ability to change the single acting fail safe design to double acting design by removal of spring module and vice versa.



The ability to increase the torque output of the double acting actuator to suit the process conditions by the addition of a second pressure module.



The ability to retrofit various types of manual override options at site.



Single Acting Output Torque

Single Acting SS Series Output Torque (N·M)

| WM Model Number | Air Supply Pressure (Bar) | | | | | | | | | | | | Spring Torque | | |
|-----------------|---------------------------|--------|-------|-------|--------|-------|-------|--------|-------|-------|--------|-------|---------------|--------|-------|
| | 3 | | | 4 | | | 5 | | | 6 | | | | | |
| | Start | Middle | End | Start | Middle | End | Start | Middle | End | Start | Middle | End | End | Middle | Start |
| SS-A1-S4 | 392 | 160 | 214 | 691 | 318 | 513 | 989 | 475 | 811 | 1288 | 633 | 1110 | 505 | 313 | 683 |
| SS-A1-S5 | | | | | | | 856 | 395 | 640 | 1155 | 553 | 939 | 637 | 394 | 854 |
| SS-A1-S6 | | | | | | | | | | 975 | 455 | 747 | 817 | 492 | 1045 |
| SS-B1-S3 | 763 | 345 | 547 | 1230 | 592 | 1013 | 1696 | 838 | 1480 | 2163 | 1085 | 1946 | 638 | 394 | 854 |
| SS-B1-S4 | | | | 1050 | 494 | 822 | 1516 | 740 | 1288 | 1983 | 987 | 1755 | 817 | 492 | 1045 |
| SS-B1-S5 | | | | | | | 1363 | 628 | 1016 | 1830 | 874 | 1482 | 971 | 604 | 1318 |
| SS-B1-S6 | | | | | | | | | | 1633 | 770 | 1285 | 1167 | 708 | 1515 |
| SS-C1-S3 | 1199 | 573 | 971 | 1871 | 927 | 1643 | 2543 | 1282 | 2315 | 3214 | 1637 | 2986 | 817 | 492 | 1045 |
| SS-C1-S4 | | | | 1521 | 711 | 1173 | 2193 | 1065 | 1845 | 2864 | 1420 | 2516 | 1167 | 708 | 1515 |
| SS-C1-S5 | | | | | | | 1968 | 899 | 1438 | 2640 | 1254 | 2110 | 1392 | 875 | 1922 |
| SS-C1-S6 | | | | | | | | | | 2287 | 1067 | 1757 | 1745 | 1061 | 2275 |
| SS-B2-S4 | 680 | 277 | 370 | 1225 | 565 | 914 | 1769 | 852 | 1459 | 2313 | 1139 | 2003 | 954 | 585 | 1264 |
| SS-B2-S5 | | | | | | | 1590 | 715 | 1117 | 2134 | 1002 | 1662 | 1132 | 723 | 1605 |
| SS-B2-S6 | | | | | | | | | | 1926 | 902 | 1490 | 1340 | 823 | 1777 |
| SS-C2-S3 | 1399 | 657 | 1088 | 2183 | 1070 | 1872 | 2966 | 1484 | 2656 | 3750 | 1898 | 3440 | 954 | 585 | 1264 |
| SS-C2-S4 | | | | 1796 | 833 | 1359 | 2579 | 1246 | 2143 | 3363 | 1660 | 2927 | 1340 | 823 | 1777 |
| SS-C2-S5 | | | | | | | 2314 | 1036 | 1612 | 3098 | 1450 | 2396 | 1605 | 1033 | 2308 |
| SS-C2-S6 | | | | | | | | | | 2884 | 1358 | 2263 | 1820 | 1125 | 2441 |
| SS-D2-S3 | 1861 | 867 | 1425 | 2928 | 1430 | 2491 | 3994 | 1993 | 3558 | 5061 | 2556 | 4625 | 1340 | 823 | 1777 |
| SS-D2-S4 | | | | 2448 | 1129 | 1827 | 3515 | 1692 | 2894 | 4582 | 2254 | 3960 | 1820 | 1125 | 2441 |
| SS-D2-S5 | | | | | | | 3243 | 1420 | 2138 | 4310 | 1983 | 3205 | 2092 | 1396 | 3197 |
| SS-D2-S6 | | | | | | | | | | 3904 | 1731 | 2655 | 2498 | 1648 | 3747 |
| SS-D3-S3 | 2657 | 1155 | 1719 | 4029 | 1879 | 3091 | 5400 | 2603 | 4463 | 6772 | 3327 | 5834 | 1459 | 1018 | 2396 |
| SS-D3-S4 | | | | 3279 | 1460 | 2252 | 4651 | 2184 | 3624 | 6022 | 2908 | 4995 | 2208 | 1437 | 3235 |
| SS-D3-S5 | | | | | | | 4372 | 1826 | 2546 | 5744 | 2550 | 3917 | 2487 | 1795 | 4313 |
| SS-D3-S6 | | | | | | | | | | 5248 | 2225 | 3184 | 2982 | 2119 | 5047 |
| SS-E3-S3 | 3167 | 1401 | 2140 | 4959 | 2346 | 3932 | 6750 | 3292 | 5723 | 8542 | 4237 | 7515 | 2208 | 1437 | 3235 |
| SS-E3-S4 | | | | 4188 | 1906 | 3035 | 5979 | 2852 | 4826 | 7771 | 3797 | 6618 | 2979 | 1877 | 4132 |
| SS-E3-S5 | | | | | | | 5206 | 2373 | 3785 | 6998 | 3319 | 5576 | 3752 | 2355 | 5173 |
| SS-E3-S6 | | | | | | | | | | 6115 | 2691 | 4081 | 4634 | 2983 | 6669 |
| SS-F3-S3 | 3824 | 1714 | 2671 | 6091 | 2911 | 4938 | 8358 | 4107 | 7205 | 10626 | 5304 | 9473 | 2979 | 1877 | 4132 |
| SS-F3-S4 | | | | 5318 | 2432 | 3897 | 7586 | 3629 | 6164 | 9853 | 4826 | 8432 | 3752 | 2355 | 5173 |
| SS-F3-S5 | | | | | | | 6703 | 3001 | 4669 | 8970 | 4198 | 6936 | 4634 | 2983 | 6669 |
| SS-F3-S6 | | | | | | | | | | 8199 | 3861 | 6430 | 5406 | 3320 | 7175 |
| SS-F4-S3 | 4884 | 2117 | 3142 | 7686 | 3595 | 5944 | 10488 | 5073 | 8746 | 13290 | 6551 | 11548 | 3523 | 2318 | 5265 |
| SS-F4-S4 | | | | 6645 | 2947 | 4522 | 9416 | 4410 | 7293 | 12187 | 5872 | 10064 | 4441 | 2904 | 6564 |
| SS-F4-S5 | | | | | | | 8469 | 3668 | 5430 | 11240 | 5131 | 8201 | 5388 | 3646 | 8427 |
| SS-F4-S6 | | | | | | | | | | 10021 | 4592 | 7379 | 6607 | 4184 | 9249 |
| SS-G4-S3 | 5824 | 2514 | 3700 | 9245 | 4319 | 7122 | 12666 | 6125 | 10543 | 16088 | 7931 | 13964 | 4441 | 2904 | 6564 |
| SS-G4-S4 | | | | 8298 | 3578 | 5259 | 11719 | 5383 | 8680 | 15140 | 7189 | 12101 | 5388 | 3646 | 8427 |
| SS-G4-S5 | | | | | | | 10500 | 4845 | 7858 | 13922 | 6650 | 11279 | 6607 | 4184 | 9249 |
| SS-G4-S6 | | | | | | | | | | 12851 | 5411 | 7654 | 7678 | 5424 | 12874 |
| SS-H4-S3 | 7032 | 2910 | 3993 | 11172 | 5094 | 8133 | 15311 | 7279 | 12272 | 19451 | 9464 | 16412 | 5388 | 3646 | 8427 |
| SS-H4-S4 | | | | 9953 | 4556 | 7310 | 14093 | 6741 | 11450 | 18232 | 8925 | 15590 | 6607 | 4184 | 9249 |
| SS-H4-S5 | | | | | | | 13022 | 5501 | 7825 | 17161 | 7686 | 11965 | 7678 | 5424 | 12874 |
| SS-H4-S6 | | | | | | | | | | 15334 | 6641 | 9832 | 9505 | 6469 | 15007 |
| SS-H5-S3 | 9446 | 3748 | 5070 | 14832 | 6528 | 10456 | 20217 | 9309 | 15842 | 25603 | 12090 | 21228 | 6566 | 4595 | 10847 |
| SS-H5-S4 | | | | 12365 | 5435 | 8207 | 17516 | 8157 | 13358 | 22668 | 10880 | 18510 | 8243 | 5454 | 12401 |
| SS-H5-S5 | | | | | | | 16936 | 7136 | 10074 | 22087 | 9858 | 15225 | 8823 | 6475 | 15685 |
| SS-H5-S6 | | | | | | | | | | 20290 | 8103 | 10378 | 10620 | 8231 | 20533 |
| SS-I5-S3 | 10151 | 4265 | 5993 | 16282 | 7505 | 12123 | 22412 | 10745 | 18254 | 28543 | 13984 | 24385 | 8243 | 5454 | 12401 |
| SS-I5-S4 | | | | 15701 | 6484 | 8839 | 21832 | 9723 | 14970 | 27963 | 12963 | 21100 | 8823 | 6475 | 15685 |
| SS-I5-S5 | | | | | | | 20034 | 7968 | 10122 | 26165 | 11207 | 16253 | 10620 | 8231 | 20533 |
| SS-I5-S6 | | | | | | | | | | 25075 | 10568 | 14923 | 11711 | 8871 | 21863 |
| SS-J5-S3 | 16212 | 6754 | 9350 | 24557 | 11163 | 17694 | 32901 | 15573 | 26039 | 41246 | 19982 | 34384 | 8823 | 6475 | 15685 |
| SS-J5-S4 | | | | 21669 | 8768 | 11517 | 30013 | 13177 | 19861 | 38358 | 17587 | 28206 | 11711 | 8871 | 21863 |
| SS-J5-S5 | | | | | | | 28188 | 10968 | 13325 | 36532 | 15377 | 21669 | 13537 | 11080 | 28400 |
| SS-J5-S6 | | | | | | | | | | 32817 | 13414 | 17953 | 17252 | 13043 | 32116 |
| SS-I6-S4 | 10550 | 4053 | 4790 | 18213 | 8103 | 12454 | 25877 | 12152 | 20117 | 33540 | 16202 | 27780 | 12442 | 8096 | 18201 |
| SS-I6-S5 | | | | | | | 23620 | 10162 | 14841 | 31283 | 14211 | 22504 | 14699 | 10087 | 23477 |
| SS-I6-S6 | | | | | | | | | | 29527 | 13283 | 20749 | 16455 | 11014 | 25233 |
| SS-J6-S3 | 18852 | 8440 | 13092 | 29283 | 13952 | 23523 | 39714 | 19464 | 33954 | 50145 | 24975 | 44385 | 12442 | 8096 | 18201 |
| SS-J6-S4 | | | | 25270 | 11034 | 16491 | 35701 | 16545 | 26922 | 46132 | 22057 | 37353 | 16455 | 11014 | 25233 |
| SS-J6-S5 | | | | | | | 31295 | 13820 | 21012 | 41726 | 19332 | 31443 | 20860 | 13740 | 31143 |
| SS-J6-S6 | | | | | | | | | | 39404 | 16356 | 22500 | 23182 | 16716 | 40086 |
| SS-K6-S3 | 24418 | 10584 | 15640 | 38042 | 17783 | 29264 | 51666 | 24982 | 42888 | 65290 | 32181 | 56511 | 16455 | 11014 | 25233 |
| SS-K6-S4 | | | | 32462 | 14436 | 22179 | 46086 | 21636 | 35803 | 59709 | 28835 | 49427 | 22035 | 14361 | 32318 |
| SS-K6-S5 | | | | | | | 42524 | 18004 | 25620 | 56147 | 25203 | 39244 | 25597 | 17992 | 42501 |
| SS-K6-S6 | | | | | | | | | | 52284 | 23162 | 35380 | 29461 | 20034 | 46364 |

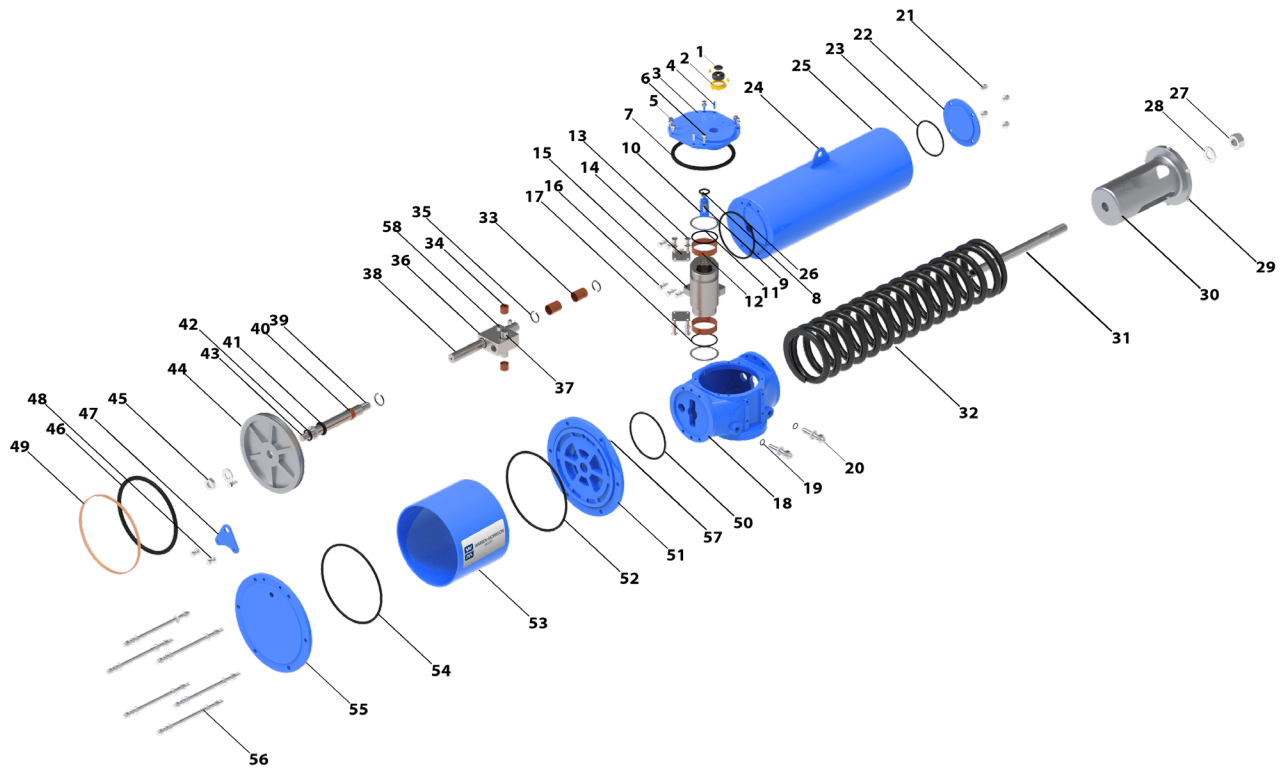
Single Acting SS Series Output Torque (N·M) (continued)

| WM Model Number | Air Supply Pressure (Bar) | | | | | | | | | | | | Spring Torque | | |
|-----------------|---------------------------|--------|-------|-------|--------|-------|--------|--------|-------|--------|--------|--------|---------------|--------|--------|
| | 3 | | | 4 | | | 5 | | | 6 | | | | | |
| | Start | Middle | End | Start | Middle | End | Start | Middle | End | Start | Middle | End | End | Middle | Start |
| SS-K7-S4 | 21845 | 8050 | 8583 | 37061 | 16100 | 23800 | 52278 | 24151 | 39016 | 67494 | 32201 | 54232 | 23805 | 16103 | 37067 |
| SS-K7-S5 | | | | | | | 46677 | 20147 | 29482 | 61894 | 28197 | 44698 | 29406 | 20107 | 46601 |
| SS-K7-S6 | | | | | | | | | | 56031 | 23132 | 31411 | 35268 | 25172 | 59888 |
| SS-L7-S3 | 33970 | 14465 | 20709 | 53229 | 24654 | 39967 | 72487 | 34843 | 59225 | 91745 | 45032 | 78484 | 23805 | 16103 | 37067 |
| SS-L7-S4 | | | | 47628 | 20650 | 30433 | 66887 | 30839 | 49691 | 86145 | 41028 | 68949 | 29406 | 20107 | 46601 |
| SS-L7-S5 | | | | | | | 61024 | 25773 | 36404 | 80282 | 35962 | 55662 | 35268 | 25172 | 59888 |
| SS-L7-S6 | | | | | | | | | | 72050 | 29750 | 40413 | 43501 | 31384 | 75137 |
| SS-M7-S3 | 41922 | 17631 | 24727 | 65698 | 30210 | 48502 | 89473 | 42789 | 72278 | 113249 | 55368 | 96053 | 29406 | 20107 | 46601 |
| SS-M7-S4 | | | | 59835 | 25144 | 35215 | 83611 | 37723 | 58991 | 107386 | 50302 | 82766 | 35268 | 25172 | 59888 |
| SS-M7-S5 | | | | | | | 75378 | 31512 | 43741 | 99154 | 44090 | 67517 | 43501 | 31384 | 75137 |
| SS-M7-S6 | | | | | | | | | | 88240 | 40581 | 65165 | 54415 | 34893 | 77489 |
| SS-K8-S4 | | | | 52334 | 22550 | 32904 | 72434 | 33267 | 53115 | 92534 | 43912 | 73215 | 28065 | 19961 | 47385 |
| SS-K8-S5 | | | | | | | 61931 | 26064 | 36593 | 82031 | 36763 | 56694 | 38567 | 27110 | 63906 |
| SS-K8-S6 | | | | | | | | | | 71290 | 29730 | 41089 | 49611 | 34159 | 79509 |
| SS-L8-S4 | | | | 63187 | 26730 | 37849 | 88626 | 40256 | 63287 | 114064 | 53729 | 88726 | 38567 | 27110 | 63906 |
| SS-L8-S5 | | | | | | | 77583 | 33140 | 47684 | 107346 | 47823 | 73123 | 45287 | 33015 | 79509 |
| SS-L8-S6 | | | | | | | | | | 93990 | 39673 | 55974 | 58643 | 41085 | 96659 |
| SS-M8-S4 | | | | 76013 | 32309 | 46113 | 107418 | 49008 | 77520 | 138824 | 65641 | 108926 | 49611 | 34159 | 79509 |
| SS-M8-S5 | | | | | | | 98386 | 41999 | 60370 | 129793 | 58716 | 91777 | 58643 | 41085 | 96659 |
| SS-M8-S6 | | | | | | | | | | 116097 | 50599 | 75167 | 72338 | 49108 | 113290 |
| SS-N8-S4 | | | | 93361 | 39341 | 55345 | 131362 | 59547 | 93346 | 169363 | 79673 | 131347 | 58643 | 41085 | 96659 |
| SS-N8-S5 | | | | | | | 117667 | 51429 | 76736 | 155667 | 71655 | 114738 | 72338 | 49103 | 113269 |
| SS-N8-S6 | | | | | | | | | | 138848 | 62007 | 95537 | 88976 | 58658 | 132750 |

Double Acting SD Series Output Torque (N·M)

| Model Number | Air Supply Pressure (Bar) | | | | | | | | | |
|--------------|---------------------------|-------|-----------|-------|-----------|-------|-----------|--------|-----------|--------|
| | 3 | | 3.5 | | 4 | | 5 | | 6 | |
| | Start/End | Mid | Start/End | Mid | Start/End | Mid | Start/End | Mid | Start/End | Mid |
| SD-A1-D1 | 896 | 473 | 1046 | 552 | 1195 | 631 | 1493 | 788 | 1792 | 946 |
| SD-B1-D1 | 1401 | 739 | 1634 | 862 | 1867 | 985 | 2333 | 1232 | | |
| SD-C1-D1 | 2017 | 1064 | 2352 | 1241 | 2688 | 1419 | | | | |
| SD-B2-D1 | 1634 | 863 | 1906 | 1006 | 2178 | 1150 | 2722 | 1437 | 3266 | 1724 |
| SD-C2-D1 | 2352 | 1241 | 2743 | 1448 | 3136 | 1655 | 3919 | 2068 | | |
| SD-D2-D1 | 3201 | 1689 | 3734 | 1971 | 4268 | 2252 | | | | |
| SD-D3-D1 | 4115 | 2172 | 4801 | 2534 | 5486 | 2896 | 6858 | 3620 | 8230 | 4344 |
| SD-E3-D1 | 5375 | 2838 | 6270 | 3309 | 7166 | 3783 | 8958 | 4728 | | |
| SD-F3-D1 | 6803 | 3590 | 7936 | 4188 | 9070 | 4787 | | | | |
| SD-F4-D1 | 8314 | 4388 | 9700 | 5119 | 11085 | 5851 | 13856 | 7313 | 16627 | 8776 |
| SD-G4-D1 | 10264 | 5417 | 11975 | 6320 | 13685 | 7223 | 17107 | 9028 | | |
| SD-H4-D1 | 12420 | 6555 | 14489 | 7648 | 16559 | 8740 | | | | |
| SD-H5-D1 | 15455 | 8167 | 18031 | 9528 | 20607 | 10889 | 25758 | 13611 | 30910 | 16333 |
| SD-I5-D1 | 18392 | 9719 | 21458 | 11339 | 24523 | 12958 | 30654 | 16199 | | |
| SD-J5-D1 | 25035 | 13229 | 29207 | 15433 | 33379 | 17638 | | | | |
| SD-I6-D1 | 22334 | 11802 | 26056 | 13769 | 29779 | 15736 | 37223 | 19669 | 44668 | 23603 |
| SD-J6-D1 | 30399 | 16064 | 35465 | 18740 | 40532 | 21418 | 50665 | 26772 | 60797 | 32126 |
| SD-K6-D1 | 39705 | 20981 | 46322 | 24477 | 52940 | 27974 | 66174 | 34967 | | |
| SD-K7-D1 | 45650 | 24152 | 53258 | 28177 | 60866 | 32202 | 76083 | 40253 | 91299 | 48304 |
| SD-L7-D1 | 57775 | 30567 | 67404 | 35662 | 77033 | 40756 | 96292 | 50945 | 115550 | 61134 |
| SD-M7-D1 | 71327 | 37738 | 83215 | 44027 | 95103 | 50316 | 118878 | 62895 | | |
| SD-K8-D1 | 64493 | 34038 | 64493 | 34038 | 85991 | 45384 | 107488 | 56730 | 128986 | 68076 |
| SD-L8-D1 | 81624 | 43079 | 81624 | 43079 | 108832 | 57439 | 136040 | 71799 | 163248 | 86159 |
| SD-M8-D1 | 100770 | 53185 | 100770 | 53184 | 134360 | 70913 | 167950 | 88640 | 201540 | 106369 |
| SD-N8-D1 | 121932 | 64353 | 121932 | 64353 | 162575 | 85804 | 203220 | 107255 | 243863 | 128706 |

Single Acting Exploded Drawing & Parts List



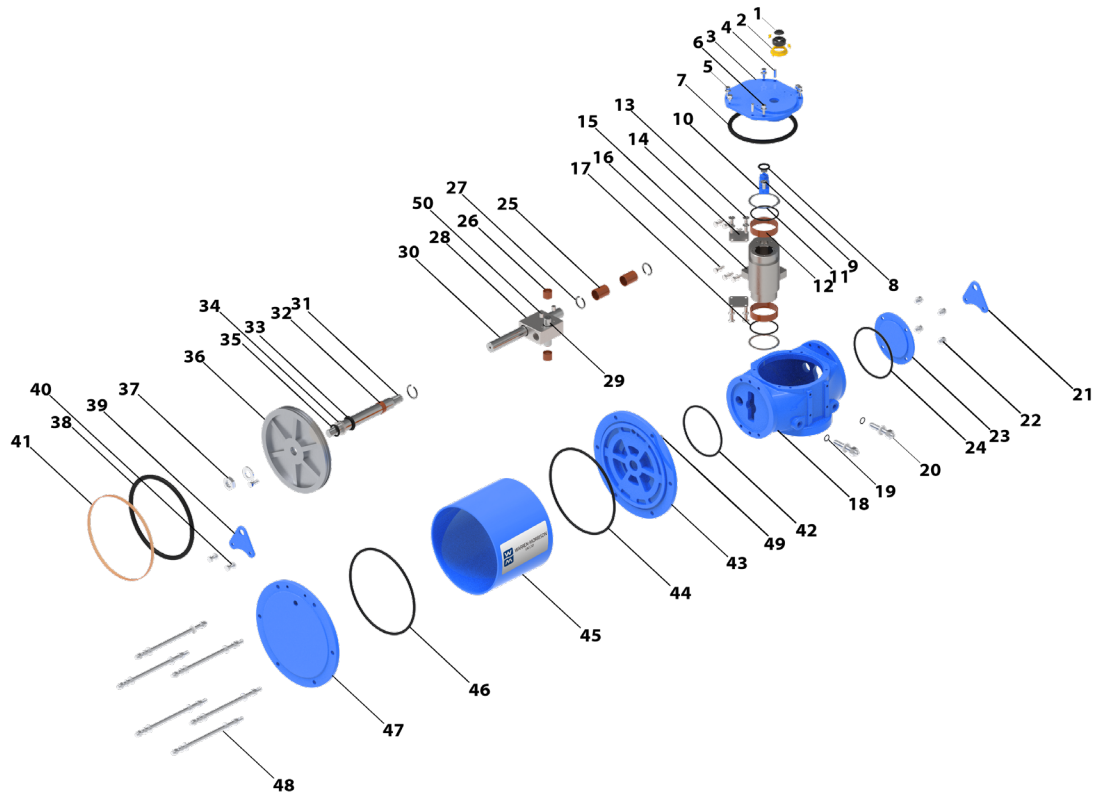
Note: representation without manual override.

| Item | Part Description | Qty | Material |
|------|--------------------------------|-----|-----------------------------|
| 1 | Indicator screw | 1 | Engineering plastics |
| 2 | Indicator set | 1 | Engineering plastics |
| 3 | Base body top cover | 1 | Ductile Iron / Carbon Steel |
| 4 | Cylindrical pin | 2 | SUS304 |
| 5 | Screw, nut, washer | 2 | SUS304 |
| 6 | Screw, washer | 4 | SUS304 |
| 7 | O-ring (top cover) | 1 | NBR |
| 8 | O-ring (accessory drive) | 1 | NBR |
| 9 | Screw | 2 | Carbon steel |
| 10 | Accessory drive | 1 | Carbon steel |
| 11 | Yoke washer | 2 | Carbon steel |
| 12 | Yoke bushing | 2 | PTFE bronze |
| 13 | Retainer plate screws | 8 | Carbon steel |
| 14 | Retainer plate | 2 | Carbon steel |
| 15 | Yoke | 1 | Ductile Iron |
| 16 | Screw, washer | 6 | SUS304 |
| 17 | O-ring (yoke) | 1 | NBR |
| 18 | Base body | 1 | Ductile Iron / Carbon Steel |
| 19 | O-ring (adjustment screws) | 2 | NBR |
| 20 | Adjustment screws, nut, washer | 2 | SUS304 |
| 21 | Screw, washer, O-ring | 4 | SUS304, NBR |
| 22 | End Cap for spring module | 1 | Carbon Steel |
| 23 | O-ring (spring end cap) | 1 | NBR |
| 24 | Lifting Lug | 1 | Carbon Steel |
| 25 | Spring module | 1 | Carbon Steel |
| 26 | O-ring (base body) | 1 | NBR |
| 27 | Nut | 1 | Carbon Steel |
| 28 | Washer | 1 | Carbon Steel |
| 29 | Wearproof button | 6 | PTFE |

| Item | Part Description | Qty | Material |
|------|-------------------------------|-----|--------------|
| 30 | Spring guide | 1 | Carbon Steel |
| 31 | Spring rod | 1 | Carbon Steel |
| 32 | Spring | 1 | Spring steel |
| 33 | Guide rod bearing | 2 | PTFE bronze |
| 34 | Yoke pin bearing | 2 | PTFE bronze |
| 35 | Check ring | 3 | Carbon Steel |
| 36 | Guide block | 1 | Carbon Steel |
| 37 | Yoke pin | 1 | Carbon Steel |
| 38 | Guide rod | 1 | Carbon Steel |
| 39 | Piston rod | 1 | Carbon Steel |
| 40 | Piston rod bushing | 1 | PTFE bronze |
| 41 | O-ring (piston rod) | 1 | NBR |
| 42 | Piston washer | 1 | Carbon Steel |
| 43 | O-ring (piston) | 1 | NBR |
| 44 | Piston | 1 | Ductile Iron |
| 45 | Bolt, nut, washer | 1 | Carbon Steel |
| 46 | O-ring (outer piston) | 1 | NBR |
| 47 | Lifting Lug | 1 | Carbon Steel |
| 48 | Screw, washer | 2 | SUS304 |
| 49 | Wearproof ring | 1 | PTFE |
| 50 | O-ring (base body) | 1 | NBR |
| 51 | Cap for pneumatic module | 1 | Ductile Iron |
| 52 | O-ring (pneumatic module) | 1 | NBR |
| 53 | Pneumatic module | 1 | Carbon Steel |
| 54 | O-ring (pneumatic module) | 1 | NBR |
| 55 | End cap for pneumatic module | 1 | Ductile Iron |
| 56 | Bolt, (nut, washer) each side | 6 | SUS304 |
| 57 | Screw, washer | 6 | SUS304 |
| 58 | Guide block pin | 6 | Carbon steel |

Small variation in components might be applicable. Please consult factory for specific details. Material for part list is indicated based on standard temperature configuration.

Double Acting Exploded Drawing & Parts List



Note: representation without manual override.

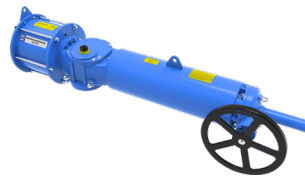
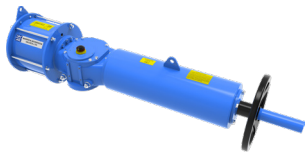
| Item | Part Description | Material |
|------|--------------------------------|-----------------------------|
| 1 | Indicator screw | Engineering plastics |
| 2 | Indicator set | Engineering plastics |
| 3 | Base body top cover | Ductile Iron / Carbon Steel |
| 4 | Cylindrical pin | SUS304 |
| 5 | Screw, nut, washer | SUS304 |
| 6 | Screw, washer | SUS304 |
| 7 | O-ring (top cover) | NBR |
| 8 | O-ring (accessory drive) | NBR |
| 9 | Screw | Carbon steel |
| 10 | Accessory drive | Carbon steel |
| 11 | Yoke washer | Carbon steel |
| 12 | Yoke bushing | PTFE bronze |
| 13 | Retainer plate screws | Carbon steel |
| 14 | Retainer plate | Carbon steel |
| 15 | Yoke | Ductile Iron |
| 16 | Screw, washer | SUS304 |
| 17 | O-ring (yoke) | NBR |
| 18 | Base body | Ductile Iron / Carbon Steel |
| 19 | O-ring (adjustment screws) | NBR |
| 20 | Adjustment screws, nut, washer | SUS304 |
| 21 | Lifting Lug | Carbon Steel |
| 22 | Screw, washer | SUS304 |
| 23 | End Cap for centre body | Carbon Steel |
| 24 | O-ring (base body) | NBR |
| 25 | Guide rod bearing | PTFE bronze |

| Item | Part Description | Material |
|------|----------------------------------|--------------|
| 26 | Yoke pin bearing | PTFE bronze |
| 27 | Check ring | Carbon Steel |
| 28 | Guide block | Carbon Steel |
| 29 | Yoke pin | Carbon Steel |
| 30 | Guide rod | Carbon Steel |
| 31 | Piston rod | Carbon Steel |
| 32 | Piston rod bushing | PTFE bronze |
| 33 | O-ring (piston rod) | NBR |
| 34 | Piston washer | Carbon Steel |
| 35 | O-ring (piston) | NBR |
| 36 | Piston | Ductile Iron |
| 37 | Bolt, nut, washer | Carbon Steel |
| 38 | O-ring (outer piston) | NBR |
| 39 | Lifting Lug | Carbon Steel |
| 40 | Screw, washer | SUS304 |
| 41 | Wearproof ring | PTFE |
| 42 | O-ring (base body) | NBR |
| 43 | Cap for pneumatic module | Ductile Iron |
| 44 | O-ring (pneumatic module) | NBR |
| 45 | Pneumatic module | Carbon Steel |
| 46 | O-ring (pneumatic module) | NBR |
| 47 | End cap for pneumatic module | Ductile Iron |
| 48 | Bolt, (nut, washer) on each side | SUS304 |
| 49 | Screw, washer | SUS304 |
| 50 | Guide block pin | Carbon steel |

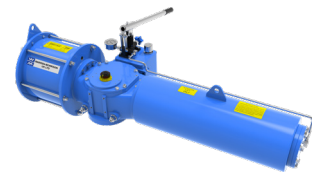
Small variation in components might be applicable. Please consult factory for specific details. Material for part list is indicated based on standard temperature configuration.

Manual Override Selection, Model Number & Actuator Volume

| Manual Override Type Selection Table based on Actuator Model | | | | | |
|--|--------------------|--------------|---------------|---------------|--------------------|
| Model Number | Handwheel Override | Model Number | Gear Override | Model Number | Hydraulic Override |
| SS-A1 | O | SS-B2 | O | SD-A1 | O |
| SS-B1 | O | SS-C2 | O | SD-B1 | O |
| SS-C1 | O | SS-D2 | O | SD-C1 | O |
| | | SS-D3 | O | SD-B2 | O |
| | | | | SD-C2 | O |
| | | | | SD-D2 | O |
| | | | | SD-D3 | O |
| | | | | SD-E3 / SS-E3 | O |
| | | | | SD-F3 / SS-F3 | O |
| | | | | SD-F4 / SS-F4 | O |
| | | | | SD-G4 / SS-G4 | O |
| | | | | SD-H4 / SS-H4 | O |
| | | | | SD-H5 / SS-H5 | O |
| | | | | SD-I5 / SS-I5 | O |
| | | | | SD-J5 / SS-J5 | O |
| | | | | SD-I6 / SS-I6 | O |
| | | | | SD-J6 / SS-J6 | O |
| | | | | SD-K6 / SS-K6 | O |
| | | | | SD-K7 / SS-K7 | O |
| | | | | SD-L7 / SS-L7 | O |
| | | | | SD-M7 / SS-M7 | O |
| | | | | SD-K8 / SS-K8 | O |
| | | | | SD-L8 / SS-L8 | O |
| | | | | SD-M8 / SS-M8 | O |
| | | | | SD-N8 / SS-N8 | O |



Manual override selection is based on one pneumatic pressure module. Images show manual override with single acting fail close configuration. Actuator sizes SD-A1 to SD-F3 can be offered with separate declutchable manual override as an option.

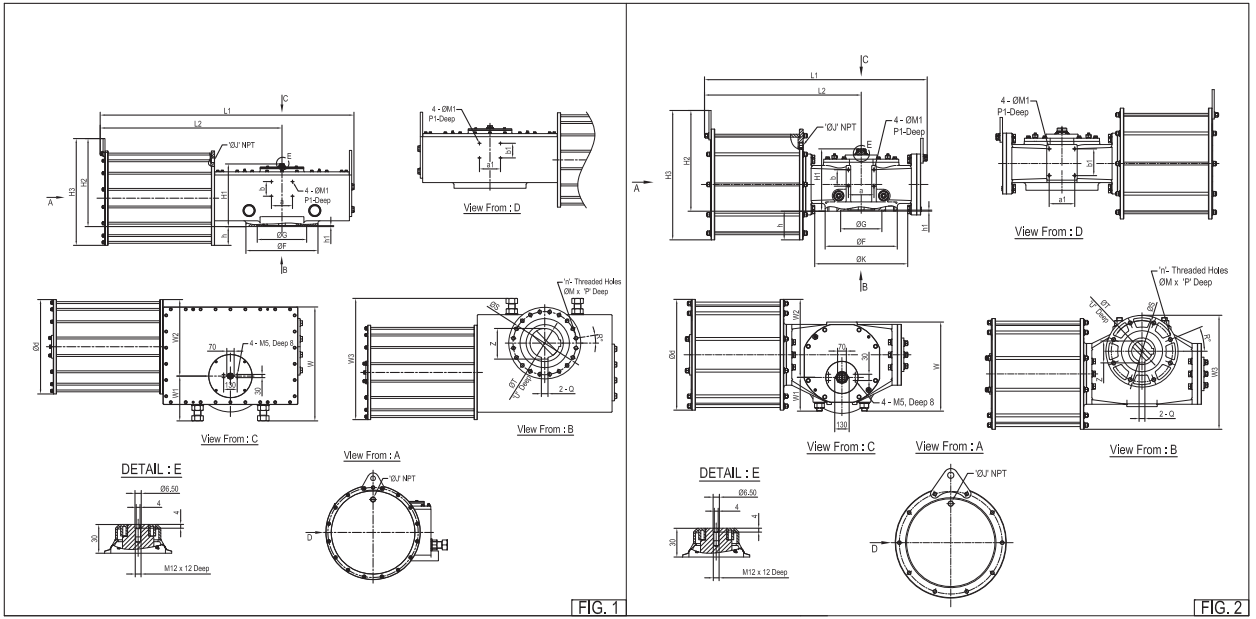


| Series | | Action | | Cylinder Size | Base ISO Mounting | | Modular Type | | Fail Position | | Manual Override | | Series | | Specials | | |
|--------|-------------|--------|--------|---------------|-------------------|---|--------------|----|---------------|---|-----------------|---|---------------------------|---|-------------|---|----------------------------|
| S | Scotch Yoke | D | Double | A | 200 | 1 | F14 | D1 | One double | L | Last | 0 | None | C | Canted | S | Standard Temp -20C/+80C |
| | | S | Single | B | 250 | 2 | F16 | D2 | Two Double | C | Close | 1 | Hydraulic pressure module | S | Symmetrical | L | Low Temp -40C/+80C |
| | | | | C | 300 | 3 | F25 | S3 | 3-bar spring | O | Open | 2 | Hydraulic spring module | | | H | High Temp -15C/+150C |
| | | | | D | 350 | 4 | F30 | S4 | 4-bar spring | | | 3 | Handwheel spring module | | | P | PTFE Coated |
| | | | | E | 400 | 5 | F35 | S5 | 5-bar spring | | | 4 | Gear spring module | | | X | Special |
| | | | | F | 450 | 6 | F40 | S6 | 6-bar spring | | | | | | | | |
| | | | | G | 500 | 7 | F48 | | | | | | | | | | |
| | | | | H | 550 | 8 | F60 | | | | | | | | | | |
| | | | | I | 600 | | | | | | | | | | | | |
| | | | | J | 700 | | | | | | | | | | | | |
| | | | | K | 800 | | | | | | | | | | | | |
| | | | | L | 900 | | | | | | | | | | | | |
| | | | | M | 1000 | | | | | | | | | | | | |
| | | | | N | 1100 | | | | | | | | | | | | |

| Actuator Model | SD-A1-D | SD-B1-D | SD-C1-D | SD-B2-D | SD-C2-D | SD-D2-D | SD-D3-D | SD-E3-D | SD-F3-D | SD-F4-D | SD-G4-D | SD-H4-D |
|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | SS-A1-S | SS-B1-S | SS-C1-S | SS-B2-S | SS-C2-S | SS-D2-S | SS-D3-S | SS-E3-S | SS-F3-S | SS-F4-S | SS-G4-S | SS-H4-S |
| Volume (L) | 5.7 | 9.6 | 13.4 | 10.1 | 16.2 | 19.7 | 25.3 | 31.2 | 39.4 | 48.3 | 57.4 | 71.3 |
| | SD-H5-D | SD-I5-D | SD-J5-D | SD-I6-D | SD-J6-D | SD-K6-D | SD-L7-D | SD-M7-D | SD-K8-D | SD-L8-D | SD-M8-D | SD-N8-D |
| | SS-H5-S | SS-I5-S | SS-J5-S | SS-I6-S | SS-J6-S | SS-K6-S | SS-L7-S | SS-M7-S | SS-K8-S | SS-L8-S | SS-M8-S | SS-N8-S |
| | 90.1 | 106.7 | 144 | 126 | 171 | 225 | 282 | 352 | 439 | 378 | 481 | 595 |

Note: if D2 (dual pressure module) is used then the volume should be doubled.

SD Dimensions & Weight



Note: Dimensions are in mm

| Model Number | Dimensions | | | | | | | | | | | | | | Weight (Kg) | Reference Figure # | | |
|--------------|------------|-----|-----|-----|------|-----|-----|-----|----|-----|------|------|--------|-----|-------------|--------------------|------|----|
| | a | b | a1 | b1 | Ød | ØF | ØG | h | h1 | H1 | H2 | H3 | ØJ | K | | | L1 | L2 |
| SD-A1-D1 | 80 | 56 | 80 | 85 | 271 | 175 | 85 | 49 | 4 | 211 | 277 | 326 | 1/2" | 269 | 666 | 473 | 77 | 2 |
| SD-B1-D1 | 80 | 56 | 80 | 85 | 328 | 175 | 85 | 78 | 4 | 211 | 314 | 392 | 1/2" | 269 | 667 | 474 | 89 | 2 |
| SD-C1-D1 | 80 | 56 | 80 | 85 | 378 | 175 | 85 | 103 | 4 | 211 | 341 | 444 | 1/2" | 269 | 652 | 459 | 106 | 2 |
| SD-B2-D1 | 80 | 80 | 80 | 100 | 328 | 210 | 130 | 69 | 5 | 234 | 322 | 391 | 1/2" | 293 | 709 | 506 | 109 | 2 |
| SD-C2-D1 | 80 | 80 | 80 | 100 | 378 | 210 | 130 | 94 | 5 | 234 | 349 | 443 | 1/2" | 293 | 705 | 502 | 130 | 2 |
| SD-D2-D1 | 80 | 80 | 80 | 100 | 428 | 210 | 130 | 119 | 5 | 234 | 368 | 487 | 1/2" | 293 | 715 | 512 | 149 | 2 |
| SD-D3-D1 | 104 | 70 | 104 | 116 | 428 | 300 | 200 | 104 | 5 | 266 | 384 | 488 | 1/2" | 369 | 886 | 625 | 196 | 2 |
| SD-E3-D1 | 104 | 70 | 104 | 116 | 484 | 300 | 200 | 132 | 5 | 266 | 421 | 553 | 3/4" | 369 | 895 | 635 | 226 | 2 |
| SD-F3-D1 | 104 | 70 | 104 | 116 | 539 | 300 | 200 | 160 | 5 | 266 | 471 | 630 | 3/4" | 369 | 895 | 635 | 266 | 2 |
| SD-F4-D1 | 124 | 80 | 124 | 130 | 539 | 350 | 200 | 140 | 5 | 303 | 490 | 630 | 3/4" | 451 | 1080 | 760 | 349 | 2 |
| SD-G4-D1 | 124 | 80 | 124 | 130 | 588 | 350 | 200 | 164 | 5 | 303 | 516 | 680 | 3/4" | 451 | 1080 | 760 | 389 | 2 |
| SD-H4-D1 | 124 | 80 | 124 | 130 | 638 | 350 | 200 | 189 | 5 | 303 | 547 | 736 | 3/4" | 451 | 1090 | 770 | 455 | 2 |
| SD-H5-D1 | 160 | 87 | 160 | 156 | 638 | 415 | 230 | 153 | 5 | 377 | 584 | 737 | 3/4" | 555 | 1277 | 903 | 631 | 2 |
| SD-I5-D1 | 160 | 87 | 160 | 156 | 692 | 415 | 230 | 180 | 5 | 377 | 611 | 791 | 1" | 555 | 1277 | 903 | 709 | 2 |
| SD-J5-D1 | 160 | 87 | 160 | 156 | 792 | 415 | 230 | 230 | 5 | 377 | 671 | 901 | 1" | 555 | 1287 | 913 | 820 | 2 |
| SD-I6-D1 | 191 | 116 | 191 | 116 | 692 | 475 | 300 | 137 | 8 | 466 | 653 | 790 | 1" | 636 | 1529 | 1087 | 1003 | 2 |
| SD-J6-D1 | 191 | 116 | 191 | 116 | 792 | 475 | 300 | 187 | 8 | 466 | 714 | 901 | 1" | 636 | 1519 | 1090 | 1117 | 2 |
| SD-K6-D1 | 191 | 116 | 191 | 116 | 902 | 475 | 300 | 242 | 8 | 466 | 779 | 1021 | 1-1/2" | 636 | 1530 | 1102 | 1323 | 2 |
| SD-K7-D1 | 180 | 120 | 180 | 120 | 902 | 560 | 370 | 225 | 8 | 497 | 795 | 1020 | 1-1/2" | - | 1861 | 1354 | 1211 | 1 |
| SD-L7-D1 | 180 | 120 | 180 | 120 | 1014 | 560 | 370 | 282 | 8 | 497 | 858 | 1137 | 2" | - | 1876 | 1369 | 1651 | 1 |
| SD-M7-D1 | 180 | 120 | 180 | 120 | 1115 | 560 | 370 | 331 | 8 | 497 | 909 | 1240 | 2" | - | 1876 | 1369 | 1981 | 1 |
| SD-K8-D1 | 200 | 140 | 200 | 140 | 902 | 686 | 470 | 180 | 8 | 598 | 841 | 1021 | 2" | - | 2418 | 1731 | 1491 | 1 |
| SD-L8-D1 | 200 | 140 | 200 | 140 | 1014 | 686 | 470 | 237 | 8 | 598 | 904 | 1140 | 2" | - | 2432 | 1746 | 1931 | 1 |
| SD-M8-D1 | 200 | 140 | 200 | 140 | 1115 | 686 | 470 | 286 | 8 | 598 | 954 | 1240 | 2" | - | 2432 | 1746 | 2152 | 1 |
| SD-N8-D1 | 200 | 140 | 200 | 140 | 1228 | 686 | 470 | 343 | 8 | 598 | 1029 | 1372 | 2" | - | 2432 | 1746 | 2372 | 1 |

| Model Number | Dimensions | | | | | | | | | | | | | | | | Weight (Kg) | Reference Figure # |
|--------------|------------|----|----|-----|----|----|--------|-----|-----|-----|------|-----|-----|------|-----|------|-------------|--------------------|
| | ØM | n | P | ØM1 | P1 | Q | R° | ØS | ØT | U | W | W1 | W2 | W3 | Z | | | |
| SD-A1-D1 | M16 | 4 | 23 | M8 | 10 | 14 | 45° | 140 | 48 | 148 | 258 | 95 | 196 | 291 | 52 | 77 | 2 | |
| SD-B1-D1 | M16 | 4 | 23 | M8 | 10 | 14 | 45° | 140 | 48 | 148 | 258 | 95 | 224 | 319 | 52 | 89 | 2 | |
| SD-C1-D1 | M16 | 4 | 23 | M8 | 10 | 14 | 45° | 140 | 48 | 148 | 258 | 95 | 249 | 344 | 52 | 106 | 2 | |
| SD-B2-D1 | M20 | 4 | 23 | M10 | 10 | 18 | 45° | 165 | 60 | 168 | 306 | 116 | 234 | 350 | 64 | 109 | 2 | |
| SD-C2-D1 | M20 | 4 | 23 | M10 | 10 | 18 | 45° | 165 | 60 | 168 | 306 | 116 | 259 | 375 | 64 | 130 | 2 | |
| SD-D2-D1 | M20 | 4 | 23 | M10 | 10 | 18 | 45° | 165 | 60 | 168 | 306 | 116 | 284 | 375 | 64 | 149 | 2 | |
| SD-D3-D1 | M16 | 8 | 24 | M10 | 10 | 20 | 22°30' | 254 | 72 | 198 | 365 | 145 | 304 | 449 | 77 | 196 | 2 | |
| SD-E3-D1 | M16 | 8 | 24 | M10 | 10 | 20 | 22°30' | 254 | 72 | 198 | 365 | 145 | 332 | 477 | 77 | 226 | 2 | |
| SD-F3-D1 | M16 | 8 | 24 | M10 | 10 | 20 | 22°30' | 254 | 72 | 198 | 365 | 145 | 360 | 505 | 77 | 266 | 2 | |
| SD-F4-D1 | M20 | 8 | 30 | M10 | 12 | 28 | 22°30' | 298 | 100 | 225 | 444 | 164 | 380 | 554 | 107 | 349 | 2 | |
| SD-G4-D1 | M20 | 8 | 30 | M10 | 12 | 28 | 22°30' | 298 | 100 | 225 | 444 | 164 | 404 | 579 | 107 | 389 | 2 | |
| SD-H4-D1 | M20 | 8 | 30 | M10 | 12 | 28 | 22°30' | 298 | 100 | 225 | 444 | 164 | 429 | 604 | 107 | 455 | 2 | |
| SD-H5-D1 | M30 | 8 | 45 | M10 | 15 | 40 | 22°30' | 356 | 160 | 300 | 552 | 207 | 459 | 666 | 169 | 631 | 2 | |
| SD-I5-D1 | M30 | 8 | 45 | M10 | 15 | 40 | 22°30' | 356 | 160 | 300 | 552 | 207 | 486 | 693 | 169 | 709 | 2 | |
| SD-J5-D1 | M30 | 8 | 45 | M10 | 15 | 40 | 22°30' | 356 | 160 | 300 | 552 | 207 | 536 | 743 | 169 | 820 | 2 | |
| SD-I6-D1 | M36 | 8 | 54 | M10 | 15 | 45 | 22°30' | 406 | 180 | 380 | 639 | 238 | 521 | 759 | 190 | 1003 | 2 | |
| SD-J6-D1 | M36 | 8 | 54 | M10 | 15 | 45 | 22°30' | 406 | 180 | 380 | 649 | 238 | 571 | 809 | 190 | 1117 | 2 | |
| SD-K6-D1 | M36 | 8 | 54 | M10 | 15 | 45 | 22°30' | 406 | 180 | 380 | 649 | 238 | 626 | 864 | 190 | 1323 | 2 | |
| SD-K7-D1 | M36 | 12 | 54 | M10 | 15 | 50 | 15° | 483 | 220 | 410 | 837 | 347 | 661 | 1008 | 231 | 1211 | 1 | |
| SD-L7-D1 | M36 | 12 | 54 | M10 | 15 | 50 | 15° | 483 | 220 | 410 | 837 | 347 | 718 | 1064 | 231 | 1651 | 1 | |
| SD-M7-D1 | M36 | 12 | 54 | M10 | 15 | 50 | 15° | 483 | 220 | 410 | 838 | 347 | 768 | 1115 | 231 | 1981 | 1 | |
| SD-K8-D1 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 731 | 1159 | 292 | 1491 | 1 | |
| SD-L8-D1 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 788 | 1215 | 292 | 1931 | 1 | |
| SD-M8-D1 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 837 | 1265 | 292 | 2152 | 1 | |
| SD-N8-D1 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 894 | 1322 | 292 | 2372 | 1 | |

SS Dimensions & Weight

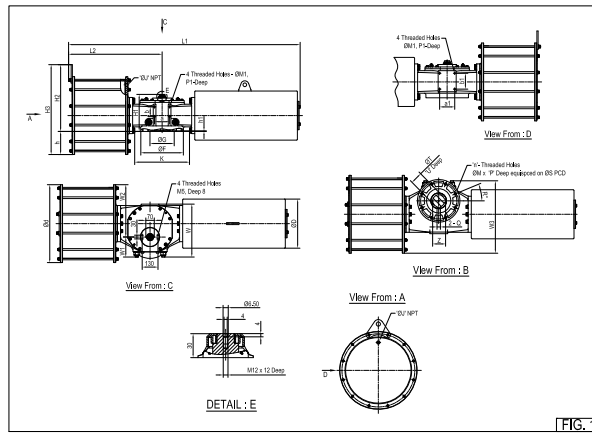


FIG. 1

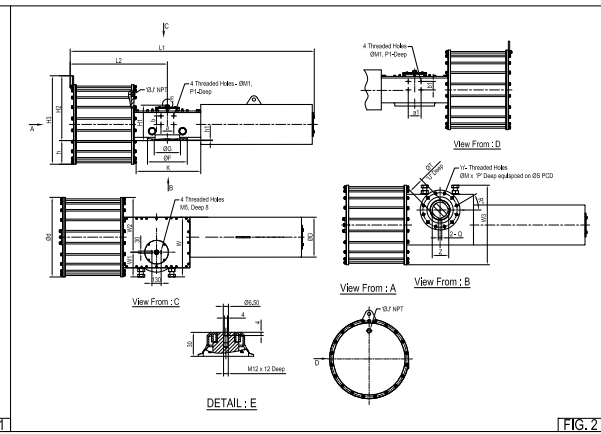


FIG. 2

Note: Dimensions are in mm

| Model Number | Dimensions | | | | | | | | | | | | | | | | | | | | | | | | | | | | Weight (Kg) | Fig. No. | | | | |
|--------------|------------|----|-----|-----|-----|-----|-----|-----|-------|-----|-------|-----|-----|------|-------|---------|-----|-----|---|----|-----|----|----|--------|-----|-----|-----|-----|-------------|----------|-----|-------|-----|---|
| | a | b | a1 | b1 | Ød | ØD | ØF | ØG | h | h1 | H1 | H2 | H3 | ØJ | K | L1 | L2 | ØM1 | n | P | ØM1 | P1 | Q | R° | ØS | ØT | U | w | | | W1 | W2 | W3 | Z |
| SS-A1-S4 | 80 | 56 | 80 | 85 | 271 | 203 | 175 | 85 | 49 | 4 | 211 | 277 | 326 | 1/2" | 269 | 1157 | 473 | M16 | 4 | 23 | M8 | 10 | 14 | 45° | 140 | 48 | 148 | 258 | 95 | 196 | 291 | 51.8 | 118 | 1 |
| SS-A1-S5 | 80 | 56 | 80 | 85 | 271 | 203 | 175 | 85 | 49 | 4 | 211 | 277 | 326 | 1/2" | 269 | 1157 | 473 | M16 | 4 | 23 | M8 | 10 | 14 | 45° | 140 | 48 | 148 | 258 | 95 | 196 | 291 | 51.8 | 122 | 1 |
| SS-A1-S6 | 80 | 56 | 80 | 85 | 271 | 203 | 175 | 85 | 49 | 4 | 211 | 277 | 326 | 1/2" | 269 | 1242 | 473 | M16 | 4 | 23 | M8 | 10 | 14 | 45° | 140 | 48 | 148 | 258 | 95 | 196 | 291 | 51.8 | 126 | 1 |
| SS-B1-S3 | 80 | 56 | 80 | 85 | 328 | 203 | 175 | 85 | 77.5 | 4 | 211 | 314 | 392 | 1/2" | 269 | 1158 | 474 | M16 | 4 | 23 | M8 | 10 | 14 | 45° | 140 | 48 | 148 | 258 | 95 | 224 | 319 | 51.8 | 129 | 1 |
| SS-B1-S4 | 80 | 56 | 80 | 85 | 328 | 203 | 175 | 85 | 77.5 | 4 | 211 | 314 | 392 | 1/2" | 269 | 1243 | 474 | M16 | 4 | 23 | M8 | 10 | 14 | 45° | 140 | 48 | 148 | 258 | 95 | 224 | 319 | 51.8 | 137 | 1 |
| SS-B1-S5 | 80 | 56 | 80 | 85 | 328 | 203 | 175 | 85 | 77.5 | 4 | 211 | 314 | 392 | 1/2" | 269 | 1243 | 474 | M16 | 4 | 23 | M8 | 10 | 14 | 45° | 140 | 48 | 148 | 258 | 95 | 224 | 319 | 51.8 | 140 | 1 |
| SS-B1-S6 | 80 | 56 | 80 | 85 | 328 | 203 | 175 | 85 | 77.5 | 4 | 211 | 314 | 392 | 1/2" | 269 | 1243 | 474 | M16 | 4 | 23 | M8 | 10 | 14 | 45° | 140 | 48 | 148 | 258 | 95 | 224 | 319 | 51.8 | 141 | 1 |
| SS-C1-S3 | 80 | 56 | 80 | 85 | 378 | 203 | 175 | 85 | 102.5 | 4 | 211 | 341 | 444 | 1/2" | 269 | 1228 | 459 | M16 | 4 | 23 | M8 | 10 | 14 | 45° | 140 | 48 | 148 | 292 | 95 | 249 | 344 | 51.8 | 154 | 1 |
| SS-C1-S4 | 80 | 56 | 80 | 85 | 378 | 203 | 175 | 85 | 102.5 | 4 | 211 | 341 | 444 | 1/2" | 269 | 1228 | 459 | M16 | 4 | 23 | M8 | 10 | 14 | 45° | 140 | 48 | 148 | 292 | 95 | 249 | 344 | 51.8 | 158 | 1 |
| SS-C1-S5 | 80 | 56 | 80 | 85 | 378 | 203 | 175 | 85 | 102.5 | 4 | 211 | 341 | 444 | 1/2" | 269 | 1228 | 459 | M16 | 4 | 23 | M8 | 10 | 14 | 45° | 140 | 48 | 148 | 292 | 95 | 249 | 344 | 51.8 | 161 | 1 |
| SS-C1-S6 | 80 | 56 | 80 | 85 | 378 | 203 | 175 | 85 | 102.5 | 4 | 211 | 341 | 444 | 1/2" | 269 | 1228 | 459 | M16 | 4 | 23 | M8 | 10 | 14 | 45° | 140 | 48 | 148 | 292 | 95 | 249 | 344 | 51.8 | 162 | 1 |
| SS-B2-S4 | 80 | 80 | 80 | 100 | 328 | 219 | 210 | 130 | 69 | 4.5 | 234 | 322 | 391 | 1/2" | 293 | 1287 | 506 | M20 | 4 | 23 | M10 | 10 | 18 | 45° | 165 | 60 | 168 | 306 | 116 | 234 | 350 | 64.4 | 164 | 1 |
| SS-B2-S5 | 80 | 80 | 80 | 100 | 328 | 219 | 210 | 130 | 69 | 4.5 | 234 | 322 | 391 | 1/2" | 293 | 1287 | 506 | M20 | 4 | 23 | M10 | 10 | 18 | 45° | 165 | 60 | 168 | 306 | 116 | 234 | 350 | 64.4 | 167 | 1 |
| SS-B2-S6 | 80 | 80 | 80 | 100 | 328 | 245 | 210 | 130 | 69 | 4.5 | 234 | 322 | 391 | 1/2" | 293 | 1347 | 506 | M20 | 4 | 23 | M10 | 10 | 18 | 45° | 165 | 60 | 168 | 306 | 116 | 234 | 350 | 64.4 | 190 | 1 |
| SS-C2-S3 | 80 | 80 | 80 | 100 | 378 | 219 | 210 | 130 | 94 | 4.5 | 234 | 349 | 443 | 1/2" | 293 | 1283 | 502 | M20 | 4 | 23 | M10 | 10 | 18 | 45° | 165 | 60 | 168 | 306 | 116 | 259 | 375 | 64.4 | 190 | 1 |
| SS-C2-S4 | 80 | 80 | 80 | 100 | 378 | 245 | 210 | 130 | 94 | 4.5 | 234 | 349 | 443 | 1/2" | 293 | 1343 | 502 | M20 | 4 | 23 | M10 | 10 | 18 | 45° | 165 | 60 | 168 | 306 | 116 | 259 | 375 | 64.4 | 209 | 1 |
| SS-C2-S5 | 80 | 80 | 80 | 100 | 378 | 245 | 210 | 130 | 94 | 4.5 | 234 | 349 | 443 | 1/2" | 293 | 1343 | 502 | M20 | 4 | 23 | M10 | 10 | 18 | 45° | 165 | 60 | 168 | 306 | 116 | 259 | 375 | 64.4 | 216 | 1 |
| SS-C2-S6 | 80 | 80 | 80 | 100 | 378 | 245 | 210 | 130 | 94 | 4.5 | 234 | 349 | 443 | 1/2" | 293 | 1383 | 502 | M20 | 4 | 23 | M10 | 10 | 18 | 45° | 165 | 60 | 168 | 306 | 116 | 259 | 375 | 64.4 | 222 | 1 |
| SS-D2-S3 | 80 | 80 | 80 | 100 | 428 | 245 | 210 | 130 | 119 | 4.5 | 234 | 368 | 487 | 1/2" | 293 | 1353 | 512 | M20 | 4 | 23 | M10 | 10 | 18 | 45° | 165 | 60 | 168 | 306 | 116 | 284 | 306 | 64.4 | 229 | 1 |
| SS-D2-S4 | 80 | 80 | 80 | 100 | 428 | 245 | 210 | 130 | 119 | 4.5 | 234 | 368 | 487 | 1/2" | 293 | 1393 | 512 | M20 | 4 | 23 | M10 | 10 | 18 | 45° | 165 | 60 | 168 | 306 | 116 | 284 | 306 | 64.4 | 242 | 1 |
| SS-D2-S5 | 80 | 80 | 80 | 100 | 428 | 245 | 210 | 130 | 119 | 4.5 | 234 | 368 | 487 | 1/2" | 293 | 1393 | 512 | M20 | 4 | 23 | M10 | 10 | 18 | 45° | 165 | 60 | 168 | 306 | 116 | 284 | 306 | 64.4 | 246 | 1 |
| SS-D2-S6 | 80 | 80 | 80 | 100 | 428 | 245 | 210 | 130 | 119 | 4.5 | 234 | 368 | 487 | 1/2" | 293 | 1393 | 512 | M20 | 4 | 23 | M10 | 10 | 18 | 45° | 165 | 60 | 168 | 306 | 116 | 284 | 306 | 64.4 | 247 | 1 |
| SS-D3-S3 | 104 | 70 | 104 | 116 | 428 | 245 | 300 | 200 | 104 | 5 | 266 | 384 | 488 | 1/2" | 369.5 | 1511.75 | 625 | M16 | 8 | 24 | M10 | 10 | 20 | 22°30' | 254 | 72 | 198 | 365 | 145 | 304 | 449 | 77 | 261 | 1 |
| SS-D3-S4 | 104 | 70 | 104 | 116 | 428 | 245 | 300 | 200 | 104 | 5 | 266 | 384 | 488 | 1/2" | 369.5 | 1572 | 625 | M16 | 8 | 24 | M10 | 10 | 20 | 22°30' | 254 | 72 | 198 | 365 | 145 | 304 | 449 | 77 | 289 | 1 |
| SS-D3-S5 | 104 | 70 | 104 | 116 | 428 | 245 | 300 | 200 | 104 | 5 | 266 | 384 | 488 | 1/2" | 369.5 | 1572 | 625 | M16 | 8 | 24 | M10 | 10 | 20 | 22°30' | 254 | 72 | 198 | 365 | 145 | 304 | 449 | 77 | 293 | 1 |
| SS-D3-S6 | 104 | 70 | 104 | 116 | 428 | 245 | 300 | 200 | 104 | 5 | 266 | 384 | 488 | 1/2" | 369.5 | 1572 | 625 | M16 | 8 | 24 | M10 | 10 | 20 | 22°30' | 254 | 72 | 198 | 365 | 145 | 304 | 449 | 77 | 294 | 1 |
| SS-E3-S3 | 104 | 70 | 104 | 116 | 484 | 245 | 300 | 200 | 132 | 5 | 266 | 421 | 553 | 3/4" | 369.5 | 1582 | 635 | M16 | 8 | 24 | M10 | 10 | 20 | 22°30' | 254 | 72 | 198 | 365 | 145 | 332 | 477 | 77 | 320 | 1 |
| SS-E3-S4 | 104 | 70 | 104 | 116 | 484 | 325 | 300 | 200 | 132 | 5 | 266 | 421 | 553 | 3/4" | 369.5 | 1673 | 635 | M16 | 8 | 24 | M10 | 10 | 20 | 22°30' | 254 | 72 | 198 | 365 | 145 | 332 | 477 | 77 | 394 | 1 |
| SS-E3-S5 | 104 | 70 | 104 | 116 | 484 | 325 | 300 | 200 | 132 | 5 | 266 | 421 | 553 | 3/4" | 369.5 | 1673 | 635 | M16 | 8 | 24 | M10 | 10 | 20 | 22°30' | 254 | 72 | 198 | 365 | 145 | 332 | 477 | 77 | 404 | 1 |
| SS-E3-S6 | 104 | 70 | 104 | 116 | 484 | 325 | 300 | 200 | 132 | 5 | 266 | 421 | 553 | 3/4" | 369.5 | 1728 | 635 | M16 | 8 | 24 | M10 | 10 | 20 | 22°30' | 254 | 72 | 198 | 365 | 145 | 332 | 477 | 77 | 421 | 1 |
| SS-F3-S3 | 104 | 70 | 104 | 116 | 539 | 325 | 300 | 200 | 159.5 | 5 | 266 | 471 | 630 | 3/4" | 369.5 | 1673 | 635 | M16 | 8 | 24 | M10 | 10 | 20 | 22°30' | 254 | 72 | 198 | 365 | 145 | 359.5 | 505 | 77 | 434 | 1 |
| SS-F3-S4 | 104 | 70 | 104 | 116 | 539 | 325 | 300 | 200 | 159.5 | 5 | 266 | 471 | 630 | 3/4" | 369.5 | 1673 | 635 | M16 | 8 | 24 | M10 | 10 | 20 | 22°30' | 254 | 72 | 198 | 365 | 145 | 359.5 | 505 | 77 | 443 | 1 |
| SS-F3-S5 | 104 | 70 | 104 | 116 | 539 | 325 | 300 | 200 | 159.5 | 5 | 266 | 471 | 630 | 3/4" | 369.5 | 1728 | 635 | M16 | 8 | 24 | M10 | 10 | 20 | 22°30' | 254 | 72 | 198 | 365 | 145 | 359.5 | 505 | 77 | 461 | 1 |
| SS-F3-S6 | 104 | 70 | 104 | 116 | 539 | 402 | 300 | 200 | 159.5 | 5 | 266 | 471 | 630 | 3/4" | 369.5 | 1721 | 635 | M16 | 8 | 24 | M10 | 10 | 20 | 22°30' | 254 | 72 | 198 | 365 | 145 | 359.5 | 505 | 77 | 538 | 1 |
| SS-F4-S3 | 124 | 80 | 124 | 130 | 539 | 325 | 350 | 200 | 140 | 5 | 303.2 | 490 | 630 | 3/4" | 451 | 1863 | 760 | M20 | 8 | 30 | M10 | 12 | 28 | 22°30' | 298 | 100 | 225 | 433 | 164 | 380 | 543 | 106.5 | 502 | 1 |
| SS-F4-S4 | 124 | 80 | 124 | 130 | 539 | 325 | 350 | 200 | 140 | 5 | 303.2 | 490 | 630 | 3/4" | 451 | 1863 | 760 | M20 | 8 | 30 | M10 | 12 | 28 | 22°30' | 298 | 100 | 225 | 433 | 164 | 380 | 543 | 106.5 | 525 | 1 |
| SS-F4-S5 | 124 | 80 | 124 | 130 | 539 | 325 | 350 | 200 | 140 | 5 | 303.2 | 490 | 630 | 3/4" | 451 | 1922 | 760 | M20 | 8 | 30 | M10 | 12 | 28 | 22°30' | 298 | 100 | 225 | 433 | 164 | 380 | 543 | 106.5 | 542 | 1 |
| SS-F4-S6 | 124 | 80 | 124 | 130 | 539 | 402 | 350 | 200 | 140 | 5 | 303.2 | 490 | 630 | 3/4" | 451 | 1896 | 760 | M20 | 8 | 30 | M10 | 12 | 28 | 22°30' | 298 | 100 | 225 | 433 | 164 | 380 | 543 | 106.5 | 618 | 1 |
| SS-G4-S3 | 124 | 80 | 124 | 130 | 588 | 325 | 350 | 200 | 164 | 5 | 303.2 | 516 | 680 | 3/4" | 451 | 1863 | 760 | M20 | 8 | 30 | M10 | 12 | 28 | 22°30' | 298 | 100 | 225 | 433 | 164 | 404 | 568 | 106.5 | 565 | 1 |
| SS-G4-S4 | 124 | 80 | 124 | 130 | 588 | 325 | 350 | 200 | 164 | 5 | 303.2 | 516 | 680 | 3/4" | 451 | 1922 | 760 | M20 | 8 | 30 | M10 | 12 | 28 | 22°30' | 298 | 100 | 225 | 433 | 164 | 404 | 568 | 106.5 | 583 | 1 |
| SS-G4-S5 | 124 | 80 | 124 | 130 | 588 | 402 | 350 | 200 | 164 | 5 | 303.2 | 516 | 680 | 3/4" | 451 | 1896 | 760 | M20 | 8 | 30 | M10 | 12 | 28 | 22°30' | 298 | 100 | 225 | 433 | 164 | 404 | 568 | 106.5 | 659 | 1 |
| SS-G4-S6 | 124 | 80 | 124 | 130 | 588 | 402 | 350 | 200 | 164 | 5 | 303.2 | 516 | 680 | 3/4" | 451 | 1996 | 760 | M20 | 8 | 30 | M10 | 12 | 28 | 22°30' | 298 | 100 | 225 | 433 | 164 | 404 | 568 | 106.5 | 711 | 1 |
| SS-H4-S3 | 124 | 80 | 124 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SS Dimensions & Weight

...continued from previous page.

| Model Number | Dimensions | | | | | | | | | | | | | | | | | | | | | | | | | | | Weight (Kg) | Fig. No. | | | | | |
|--------------|------------|-----|-----|-----|------|-----|-----|-----|-------|----|-------|--------|--------|--------|------|--------|--------|-----|----|----|-----|----|----|-----|-----|-----|-----|-------------|----------|-------|------|-------|------|---|
| | a | b | a1 | b1 | Ød | ØD | ØF | ØG | h | h1 | H1 | H2 | H3 | ØJ | K | L1 | L2 | ØM | n | P | ØM1 | P1 | Q | R* | ØS | ØT | U | | | W | W1 | W2 | W3 | Z |
| SS-K7-S4 | 180 | 120 | 180 | 120 | 902 | 500 | 560 | 370 | 225 | 8 | 496.5 | 795.5 | 1020 | 1 1/2" | 940 | 3706 | 1354 | M36 | 12 | 54 | M10 | 15 | 50 | 15° | 483 | 220 | 410 | 837 | 347 | 661 | 1008 | 231.4 | 2363 | 2 |
| SS-K7-S5 | 180 | 120 | 180 | 120 | 902 | 560 | 560 | 370 | 225 | 8 | 496.5 | 795.5 | 1020 | 1 1/2" | 940 | 3698 | 1354 | M36 | 12 | 54 | M10 | 15 | 50 | 15° | 483 | 220 | 410 | 837 | 347 | 661 | 1008 | 231.4 | 2683 | 2 |
| SS-K7-S6 | 180 | 120 | 180 | 120 | 902 | 560 | 560 | 370 | 225 | 8 | 496.5 | 795.5 | 1020 | 1 1/2" | 940 | 3862 | 1354 | M36 | 12 | 54 | M10 | 15 | 50 | 15° | 483 | 220 | 410 | 837 | 347 | 661 | 1008 | 231.4 | 2853 | 2 |
| SS-L7-S3 | 180 | 120 | 180 | 120 | 1014 | 500 | 560 | 370 | 281.5 | 8 | 496.5 | 858.5 | 1140 | 2" | 909 | 3713 | 1369 | M36 | 12 | 54 | M10 | 15 | 50 | 15° | 483 | 220 | 410 | 837 | 347 | 717.5 | 1064 | 231.4 | 2803 | 2 |
| SS-L7-S4 | 180 | 120 | 180 | 120 | 1014 | 560 | 560 | 370 | 281.5 | 8 | 496.5 | 858.5 | 1140 | 2" | 909 | 3713 | 1369 | M36 | 12 | 54 | M10 | 15 | 50 | 15° | 483 | 220 | 410 | 837 | 347 | 717.5 | 1064 | 231.4 | 3102 | 2 |
| SS-L7-S5 | 180 | 120 | 180 | 120 | 1014 | 560 | 560 | 370 | 281.5 | 8 | 496.5 | 858.5 | 1140 | 2" | 909 | 3877 | 1369 | M36 | 12 | 54 | M10 | 15 | 50 | 15° | 483 | 220 | 410 | 837 | 347 | 717.5 | 1064 | 231.4 | 3312 | 2 |
| SS-L7-S6 | 180 | 120 | 180 | 120 | 1014 | 560 | 560 | 370 | 281.5 | 8 | 496.5 | 858.5 | 1140 | 2" | 909 | 3877 | 1369 | M36 | 12 | 54 | M10 | 15 | 50 | 15° | 483 | 220 | 410 | 837 | 347 | 717.5 | 1064 | 231.4 | 3582 | 2 |
| SS-M7-S3 | 180 | 120 | 180 | 120 | 1115 | 560 | 560 | 370 | 331 | 8 | 496.5 | 908.5 | 1240 | 2" | 909 | 3713 | 1369 | M36 | 12 | 54 | M10 | 15 | 50 | 15° | 483 | 220 | 410 | 837 | 347 | 767 | 1114 | 231.4 | 3212 | 2 |
| SS-M7-S4 | 180 | 120 | 180 | 120 | 1115 | 560 | 560 | 370 | 331 | 8 | 496.5 | 908.5 | 1240 | 2" | 909 | 3877 | 1369 | M36 | 12 | 54 | M10 | 15 | 50 | 15° | 483 | 220 | 410 | 837 | 347 | 767 | 1114 | 231.4 | 3352 | 2 |
| SS-M7-S5 | 180 | 120 | 180 | 120 | 1115 | 560 | 560 | 370 | 331 | 8 | 496.5 | 908.5 | 1240 | 2" | 909 | 3877 | 1369 | M36 | 12 | 54 | M10 | 15 | 50 | 15° | 483 | 220 | 410 | 837 | 347 | 767 | 1114 | 231.4 | 3652 | 2 |
| SS-M7-S6 | 180 | 120 | 180 | 120 | 1115 | 560 | 560 | 370 | 331 | 8 | 496.5 | 908.5 | 1240 | 2" | 909 | 3877 | 1369 | M36 | 12 | 54 | M10 | 15 | 50 | 15° | 483 | 220 | 410 | 837 | 347 | 767 | 1114 | 231.4 | 3902 | 2 |
| SS-K8-S4 | 200 | 140 | 200 | 140 | 902 | 560 | 686 | 470 | 180 | 8 | 598 | 840.5 | 1020.5 | 2" | 1284 | 4451 | 1731 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 731 | 1159 | 292.4 | 3272 | 2 |
| SS-K8-S5 | 200 | 140 | 200 | 140 | 902 | 560 | 686 | 470 | 180 | 8 | 598 | 840.5 | 1020.5 | 2" | 1284 | 4451 | 1731 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 731 | 1159 | 292.4 | 3772 | 2 |
| SS-K8-S6 | 200 | 140 | 200 | 140 | 902 | 610 | 686 | 470 | 180 | 8 | 598 | 840.5 | 1020.5 | 2" | 1284 | 5095 | 1731 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 731 | 1159 | 292.4 | 3892 | 2 |
| SS-L8-S4 | 200 | 140 | 200 | 140 | 1014 | 560 | 686 | 470 | 236.5 | 8 | 598 | 903.5 | 1139.5 | 2" | 1284 | 4465.5 | 1745.5 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 788 | 1215 | 292.4 | 4209 | 2 |
| SS-L8-S5 | 200 | 140 | 200 | 140 | 1014 | 610 | 686 | 470 | 236.5 | 8 | 598 | 903.5 | 1139.5 | 2" | 1284 | 5110 | 1745.5 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 788 | 1215 | 292.4 | 4343 | 2 |
| SS-L8-S6 | 200 | 140 | 200 | 140 | 1014 | 610 | 686 | 470 | 236.5 | 8 | 598 | 903.5 | 1139.5 | 2" | 1284 | 5110 | 1745.5 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 788 | 1215 | 292.4 | 4713 | 2 |
| SS-M8-S4 | 200 | 140 | 200 | 140 | 1115 | 610 | 686 | 470 | 286 | 8 | 598 | 953.5 | 1240 | 2" | 1284 | 5109 | 1745 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 837 | 1266 | 292.4 | 4923 | 2 |
| SS-M8-S5 | 200 | 140 | 200 | 140 | 1115 | 610 | 686 | 470 | 286 | 8 | 598 | 953.5 | 1240 | 2" | 1284 | 5109 | 1745 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 837 | 1266 | 292.4 | 5123 | 2 |
| SS-M8-S6 | 200 | 140 | 200 | 140 | 1115 | 610 | 686 | 470 | 286 | 8 | 598 | 953.5 | 1240 | 2" | 1284 | 5109 | 1745 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 837 | 1266 | 292.4 | 5323 | 2 |
| SS-N8-S4 | 200 | 140 | 200 | 140 | 1228 | 610 | 686 | 470 | 343 | 8 | 598 | 1028.5 | 1372 | 2" | 1284 | 5115 | 1751 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 894 | 1322 | 292.4 | 5183 | 2 |
| SS-N8-S5 | 200 | 140 | 200 | 140 | 1228 | 610 | 686 | 470 | 343 | 8 | 598 | 1028.5 | 1372 | 2" | 1284 | 5115 | 1751 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 894 | 1322 | 292.4 | 5533 | 2 |
| SS-N8-S6 | 200 | 140 | 200 | 140 | 1228 | 610 | 686 | 470 | 343 | 8 | 598 | 1028.5 | 1372 | 2" | 1284 | 5115 | 1751 | M36 | 20 | 54 | M10 | 15 | 63 | 9° | 603 | 280 | 470 | 1088 | 428 | 894 | 1322 | 292.4 | 5953 | 2 |



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