



UÉ Quality Alert

Polyethylene (PE) Stub Flange Assembly Systems

Document No.: ID-C-QA-04
Approved by: John Prendeville

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1. What happened?

A variation of polyethylene (PE) stub flange assembly systems are being installed on new water networks.

2. Uisce Éireann requirements

Uisce Éireann requirements for all polyethylene (PE) stub flange assembly systems are as follows on Uisce Éireann projects:

2.1 Minimum required marking of loose steel backing flanges

UÉ requires that loose steel backing flanges are to be marked in adherence to ISO 9624 table 10 below.

Table 10 — Minimum required marking of loose backing flanges

Aspect	Marking
Standard number ^a	ISO 9624
Size designation of loose backing flange, DN ^a	e.g. DN250
Pressure rating, PN	e.g. PN 16
Manufacturer identification	Name or symbol
Traceability element (production date or code) ^a	e.g. 0216
^a Marking may be affixed on a label, or on the packaging, or in the technical documentation.	

2.2 Loose steel backing flanges – thickness requirements (C1) Type 2

Table 13 – EN 1092-1

DN	Mating dimensions										Outside Diameter of Neck	Bore Diameter				Flange thickness				Chamfer	Collar thickness				Diameter of Shoulders	Length					Neck diameters			Corner Radius	Wall thickness
	Outside Diameter	Diameter of Bolt Circle	Diameter of Bolt Hole	Bolting		A	B1	B2	B3	C1		C2	C3	C4	E	F	G max	H1	H2		H3	H4	H5	N1		N2	N3	R1	S						
				D	K																									L	No	Size			
Flange Dimensions																																			
11 12 13 21 22 23 31 32 33 34 35 36 37 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000																																			
10	90	60	14	4	M12	17.2	18.0	21	31	14	16	16	16	3	12	5	2.0	2.5	-	22	35	6	35	35	7	28	30	28	11	12	11				
15	95	65	14	4	M12	21.3	22.0	25	35	14	16	16	16	3	12	5	2.0	2.5	-	22	38	6	38	38	7	32	35	32	12	13	11				
20	105	75	14	4	M12	26.9	27.5	31	42	16	18	18	18	4	14	6	2.5	3.0	-	26	40	6	40	40	8	40	45	40	13	14	11				
25	115	85	14	4	M12	33.7	34.5	38	49	16	18	18	18	4	14	7	2.5	3.0	-	28	40	6	40	40	8	40	45	40	13	14	11				
32	140	100	18	4	M16	42.4	43.5	47	59	18	18	18	18	5	14	8	3.0	3.0	-	30	42	6	42	42	7	42	45	42	14	15	11				
40	150	110	18	4	M16	48.3	49.5	53	67	18	18	18	18	5	14	8	3.0	3.0	-	32	45	7	45	45	7	45	48	45	15	16	11				
50	165	125	18	4	M16	60.3	61.5	65	77	20	18	18	18	5	16	8	3.0	4.0	-	28	45	8	45	45	8	45	48	45	16	17	11				
65	185	145	18	8 a	M16	76.1	77.5	81	96	20	18	18	18	6	16	8	3.0	4.0	55	32	45	10	45	45	8	45	48	45	16	17	11				
80	200	160	18	8	M16	88.9	90.5	94	108	20	20	20	20	6	16	10	3.0	4.0	70	34	50	10	45	45	8	45	48	45	16	17	11				
100	220	180	18	8	M16	114.3	116.0	120	134	22	20	20	20	6	18	10	4.0	4.0	90	40	52	12	45	45	8	45	48	45	16	17	11				
125	250	210	18	8	M16	139.7	141.5	145	162	22	22	22	22	6	18	10	4.0	4.0	115	44	55	12	45	45	8	45	48	45	16	17	11				
150	285	240	22	8	M20	168.3	170.5	174	188	24	22	22	22	6	20	10	5.0	5.0	140	44	55	12	45	45	8	45	48	45	16	17	11				
200	340	295	22	12	M20	219.1	221.5	226	240	26	24	24	24	6	20	11	6.0	6.0	190	44	62	16	45	45	8	45	48	45	16	17	11				
250	405	355	26	12	M24	273.0	276.5	281	294	29	26	26	26	8	22	12	10.0	-	235	46	70	16	45	45	8	45	48	45	16	17	11				
300	460	410	26	12	M24	323.9	327.5	333	348	32	28	28	28	8	24	14	10.0	-	285	46	78	16	45	45	8	45	48	45	16	17	11				
350	520	470	26	16	M24	355.6	359.5	365	400	35	30	30	30	8	26	18	10.0	-	330	57	82	16	45	45	8	45	48	45	16	17	11				
400	580	525	30	16	M27	406.4	411.0	416	454	38	32	32	32	8	28	20	10.0	-	380	63	85	16	45	45	8	45	48	45	16	17	11				
450	640	585	30	20	M27	457.0	462.0	467	500	42	34	40	40	8	30	22	-	-	425	68	83	16	45	45	8	45	48	45	16	17	11				
500	715	650	33	20	M30	508.0	513.5	519	556	46	36	44	44	8	32	22	-	-	475	73	84	16	45	45	8	45	48	45	16	17	11				
600	840	770	36	20	M33	610.0	616.5	622	660	55	40	54	54	8	32	24	-	-	575	83	88	18	95	-	-	670	658	690	12	8.8	See note				
700	910	840	36	24	M33	711.0	-	721	-	63	40	-	-	8	26	-	-	-	670	83	104	18	100	-	-	755	760	760	12	-	-				
800	1025	950	39	24	M36	813.0	-	824	-	74	41	-	-	8	28	-	-	-	770	90	108	20	105	-	-	855	864	862	12	-	-				
900	1125	1050	39	28	M36	914.0	-	926	-	82	48	-	-	8	30	-	-	-	860	94	118	20	110	-	-	955	968	962	12	-	-				
1000	1255	1170	42	28	M39	1016	-	1030	-	90	59	-	-	8	35	-	-	-	960	100	137	22	120	-	-	1058	1072	1076	16	-	-				
1200	1485	1390	48	32	M45	1219	-	-	-	-	78	-	-	-	-	-	-	-	1160	-	160	30	-	-	-	1262	-	1282	16	-	-				
1400	1685	1590	48	36	M45	1422	-	-	-	-	84	-	-	-	-	-	-	-	1346	-	177	30	-	-	-	1465	-	1482	16	-	-				
1600	1930	1820	56	40	M52	1626	-	-	-	-	102	-	-	-	-	-	-	-	1546	-	204	35	-	-	-	1668	-	1696	16	-	-				
1800	2130	2020	56	44	M52	1829	-	-	-	-	110	-	-	-	-	-	-	-	1746	-	218	35	-	-	-	1870	-	1896	16	-	-				
2000	2345	2230	62	48	M56	2032	-	-	-	-	124	-	-	-	-	-	-	-	1950	-	238	40	-	-	-	2072	-	2100	16	-	-				

Note: Flange thickness (C1) from Table 13 is based on a steel density of 7.85 g/m³.

2.3 PE stub flange assembly system

PE stub flange assembly systems are to be designed to meet a working pressure of 16 bar and a test pressure of 24 bar. All these individual components which includes loose steel backing flanges, flange gasket and bolt sets should be in accordance with their appropriate standard as per EN 12201. Certification is required from the manufacturer that the PE stub flange assembly system has been subjected to successful performance testing in accordance with EN 12201-5.

Installation instructions, with particular reference to torque requirements of bolts, shall accompany the PE stub flange assembly system. Minimum flange thickness (C1) requirements from table 13 shall apply for type 2 loose steel backing flanges.



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3. Immediate Actions

1. Each Stub flange assembly system (PE stub flange, backing ring, gasket and bolt set) must be sourced from a single manufacturer.
2. Prior to installation of any stub flange assembly system UÉ must be provided with a certificate from a third party certification body e.g. BSI Kitemark or equivalent which demonstrates that the proposed complete stub flange assembly meets EN 12201 Part 3 for fittings and has been assessed to EN 12201 Part 5 for fitness of purpose of the system.

4. Further Information:

Email: iddquality@water.ie

5. Distribution:

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